SPP-S9003

SERVICE MANUAL

E Model

SPECIFICATIONS

Generales

Método de dispersión	Espectro de dispersión de secuencia directa
Método de acceso	FDMA-TDD
Banda de frecuencias	902 - 928 MHz
Canales de operación	14 canales
Accesorios suministrados	Adaptador de alimentación de CA Cable de línea telefónica Batería BP-T31 Directorios (2 hojas) Soporte mural Tornillos (2)

Microteléfono

Fuente de alimentación	Batería BP-T31	
Duración de la batería	Espera:	Aprox. 7 días (modo RING ON) Aprox. 3 semanas (modo RING OFF)
	Conversación:	Aprox. 6 horas
Tiempo de carga de la batería	Aprox. 12 horas	
Dimensiones	Aprox. 56 × 183 × 55 mm (an/al/prf), excluyendo la antena (aprox. 2 1/4 × 7 1/4 × 2 1/4 pulgadas) Antena: Aprox. 75 mm (aprox. 3 pulgadas)	
Masa	Aprox. 250 g (aprox. 8,8 oz), incluyendo la batería	

Unidad base

Fuentes de alimentación	9V CC del adaptador de alimentación de CA
Tiempo de carga de la batería	Aprox. 24 horas
Dimensiones	Aprox. 123 × 70 × 225 mm (an/al/prf), excluyendo la antena (aprox. 4 7/8 × 2 7/8 × 8 7/8 pulgadas) Antena: Aprox. 165 mm (aprox. 6 ½ pulgadas)
Masa	Aprox. 350 g (aprox. 12 oz), excluyendo el soporte mural

El diseño y las especificaciones están sujetos a cambio sin previo aviso.

CORDLESS TELEPHONE

MICROFILM

SONY®

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Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Configuración del teléfono

Elija el mejor emplazamiento

La ubicación de la unidad base afecta a la calidad de recepción del auricular.
Coloque la unidad base:

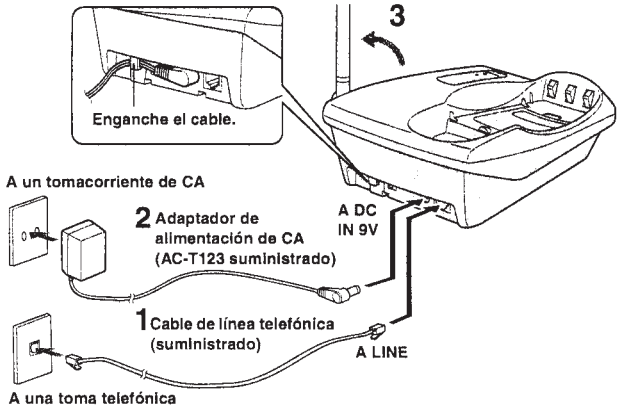
- cerca de un lugar céntrico y sobre una superficie nivelada
- alejada de televisores y otros equipos electrónicos, ordenadores personales u hornos microondas
- alejada de fuentes de ruido, como calles muy transitadas
- alejada de otros teléfonos inalámbricos
- alejada de fuentes de calor como radiadores, salidas de aire y luz solar
- alejada de la humedad excesiva, temperaturas extremadamente bajas, polvo, vibraciones mecánicas y sacudidas

PRECAUCIÓN

- Si experimenta la pérdida intermitente de sonido durante una conversación, acérquese a la unidad base, aleje ésta de fuented de ruiso.
- Este teléfono inalámbrico funciona a una frecuencia que puede causar interferencias con los televisores y videograbadoras de su entorno. La unidad base no debe colocarse cerca ni encima de un televisor o videograbadora. En caso de producirse interferencias, éstas pueden eliminarse en muchos casos alejando el teléfono aún más del televisor o videograbadora.

Conecte la unidad base

Si desea colgar la unidad base en una pared, consulte "Montaje de la unidad base en una pared".


3
Enganche el cable.
A un tomacorriente de CA
2 Adaptador de alimentación de CA (AC-T123 suministrado)
A DC IN 9V
1 Cable de línea telefónica (suministrado)
A LINE
A una toma telefónica

1 Conecte el cable de línea telefónica a la toma LINE y a una toma telefónica.

2 Conecte el adaptador de alimentación de CA a la toma DC IN 9V y a un tomacorriente de CA.

3 Extienda completamente la antena. Cerciórese de que quede apuntando hacia el techo.

Notas

- Utilice solamente el adaptador de alimentación de CA AC-T123 suministrado. No emplee ningún otro adaptador de alimentación de CA.
- Conecte el adaptador de alimentación de CA a una fuente de alimentación continua.
- Coloque la unidad base cerca del tomacorriente de CA para poder desenchufar fácilmente el adaptador de alimentación de CA.

Polaridad de la clavija

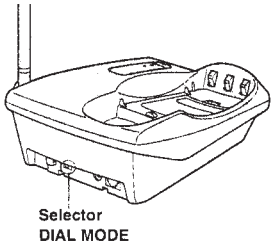
Sugerencia

Si su toma telefónica no es modular, póngase en contacto con la compañía telefónica para solicitar ayuda.

Toma modular

Elija el modo de marcación

Para que el teléfono funcione correctamente, seleccione el modo de marcación apropiado (por tonos o por pulsos).



Dependiendo de su sistema de marcación, ajuste el selector DIAL MODE de la forma siguiente:

Si su sistema de marcación es	Ponga el selector en
Por tonos	T
Por pulsos	P

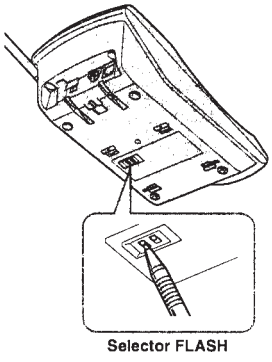
Si no está seguro de su sistema de marcación

Realice una llamada de prueba con el selector DIAL MODE en T. Si la llamada se conecta, deje así el selector. En caso contrario, póngalo en P.

Ajuste del tiempo de parpadeo

Si está utilizando el servicio de llamada en espera, tendrá que ajustar el tiempo de parpadeo de acuerdo con el mismo.
Con respecto al tiempo de parpadeo, póngase en contacto con su compañía telefónica. El tiempo de parpadeo ha sido ajustado en fábrica a 700 ms.

Para ajustar el selector FLASH, utilice un bolígrafo, etc.



Ajuste el selector FLASH de acuerdo con el servicio de llamada en espera de su país de la forma siguiente:

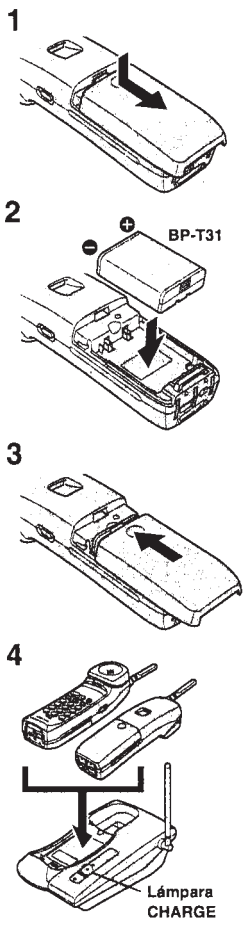
Tiempo de parpadeo	Sitúe el selector en la posición
México (100 ms)	1 2 ON OFF
Panamá, Venezuela, Argentina (270 ms)	1 2 ON OFF
Colombia (600 ms)	1 2 ON OFF
Ajuste de fábrica (700 ms)	1 2 ON OFF

Nota

El servicio de llamada en espera es posible que no esté disponible en países no indicados arriba.

Cargue la batería

Antes de utilizar el microteléfono inalámbrico, cargue la batería durante más de **12 horas**.



1 Deslice y abra la tapa del compartimiento de la batería del microteléfono.

2 Inserte la batería en el compartimiento para la misma.

3 Cierre la tapa del compartimiento de la batería.

4 Coloque el microteléfono en la unidad base.

Usted podrá colocar cualquier cara hacia arriba.

La lámpara CHARGE se encenderá cuando el microteléfono esté completamente asentado en los terminales de la unidad base. Cargue la batería durante más de **12 horas** a fin de que quede completamente cargada. La lámpara CHARGE permanecerá encendida incluso aunque haya terminado la carga.

Duración de la batería

Una batería completamente cargada durará aproximadamente:

- Aprox. 6 horas cuando utilice continuamente el microteléfono inalámbrico.
- Aprox. 7 días (modo RING ON) o 3 semanas (modo RING OFF) con el microteléfono en el modo de espera.

Notas

- La batería se descargará gradualmente con el tiempo, incluso aunque no se utilice.
- Si deja la batería en el microteléfono sin cargarla, se descargará completamente. Para que la batería recupere su plena capacidad, pueden requerirse varias cargas.
- Durante la carga, la batería se calentará. Esto no significa mal funcionamiento.

Para obtener el máximo rendimiento de la batería

No coloque el microteléfono base en la unidad base después de cada llamada. La batería trabajará mejor si devuelve el microteléfono a la unidad base después de dos o tres llamadas. Sin embargo, no deje el teléfono fuera de la unidad base durante mucho tiempo, ya que la batería podría descargarse completamente.

Cuándo adquirir una nueva batería

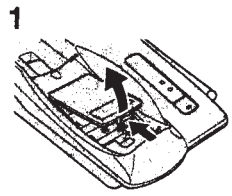
Si la batería dura solamente algunos minutos incluso después de **12 horas** de carga, la duración útil de la misma habrá expirado, y habrá que reemplazarla. Póngase en contacto con su proveedor o con un centro de reparaciones autorizado por Sony, y solicite una nueva batería **BP-T31** Sony.

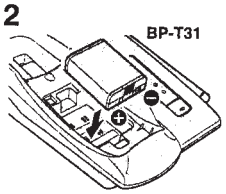
Nota

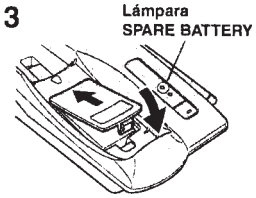
La duración de la batería puede variar dependiendo de las condiciones de utilización y de la temperatura ambiental.

Utilización de una batería de repuesto del microteléfono

Como con esta unidad solamente se suministra una batería, tendrá que adquirir otra (opcional) para utilizarla como repuesto en el microteléfono.







1 Abra la tapa del compartimiento de la pila de la unidad base.

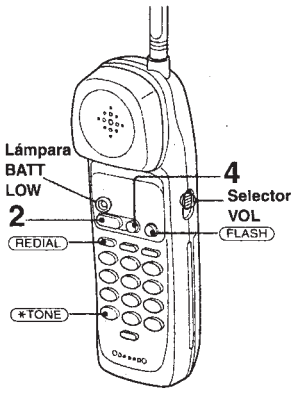
2 Inserte la batería (opcional) en el compartimiento para la misma.

3 Cierre la tapa del compartimiento de la batería.

La lámpara SPARE BATTERY se encenderá. Cargue la batería durante más de 24 horas a fin de que quede completamente cargada. La lámpara SPARE BATTERY permanecerá encendida incluso aunque haya terminado la carga.

Realización y recepción de llamadas (continuación)

Realización de llamadas



1 Tome el microteléfono de la unidad base.

2 Presione (TALK) y espere hasta que se encienda la tecla TALK.

Las teclas de marcación se encenderán. Después oirá el tono de invitación a marcar. Si oye cinco pitidos cortos de error, acérquese a la unidad base.

3 Marque el número de teléfono.

4 Cuando termine de conversar, presione (OFF) o coloque el microteléfono en la unidad base.

La tecla TALK se apagará.

Recepción de llamadas

1 Cuando suene el teléfono:

- Presione (TALK) (o cualquier tecla excepto (OFF)).

o

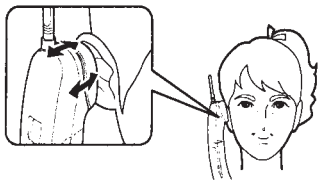
- Tome el microteléfono de la unidad base si está colocado en ella.

La tecla TALK se encenderá.

2 Cuando termine de conversar, presione (OFF) o coloque el microteléfono en la unidad base. La tecla TALK se apagará.

Ezfit

"Ezfit" se ajusta a cualquier forma de oído permitiendo la recepción clara de la voz.



Tareas adicionales

Para	Haga lo siguiente
Ajustar el volumen del microteléfono	Ponga el selector VOL en H (alto), M (medio), o L (bajo).
Cambiar temporalmente a marcación por tonos	Presione (*TONE) después de haberse conectado la llamada. La línea permanecerá en el modo de marcación por tonos hasta que la desconecte.
Cambiar a otra llamada ("servicio de llamada en espera"*)	Presione (FLASH). Para volver a la llamada anterior, presione de nuevo la tecla.

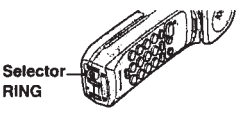
* Para abonarse a este servicio, póngase en contacto con la compañía telefónica.

Notas

- Si aumenta el volumen del sonido, es posible que en algunos casos aumente también el ruido de fondo. Ajuste adecuadamente el volumen.
- Si el microteléfono emite un pitido cada segundo durante la conversación, acérquese a la unidad base, ya que de lo contrario la llamada se conectará después de un minuto.

Sugerencia

Usted podrá ahorrar energía de la batería poniendo el selector RING de la parte inferior en OFF.
El teléfono no sonará, pero usted podrá seguir realizando llamadas. También podrá recibir llamadas si hay otro teléfono conectado a la misma línea y suena para indicarle la entrada de llamadas. Sin embargo, no podrá llamar al microteléfono desde la unidad base.



Si la batería se debilita durante una llamada

El microteléfono emitirá dos pitidos cada segundo y la lámpara BATT LOW parpadeará al mismo tiempo. Finalice su llamada y cargue la batería.

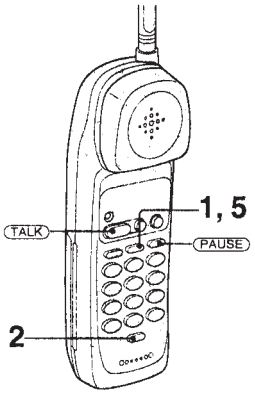
Para obtener el óptimo rendimiento, cargue la batería durante 12 horas.

Tenga en cuenta que durante la carga inicial (unos 10 minutos), la lámpara BATT LOW estará encendida y no podrá utilizar el teléfono.
Después de que se haya apagado la lámpara BATT LOW, usted **podrá** utilizar el teléfono, pero la duración de la batería será **muy corta**, motivo por el que se recomienda **cargar completamente** la batería antes de usar el teléfono.

Marcación abreviada

Usted podrá marcar un número de teléfono presionando unas pocas teclas después de haber almacenado tal número en una tecla de marcación abreviada.

Almacenamiento de números de teléfono



1 Presione (PGM).
La tecla TALK parpadeará.

2 Presione (SPEED DIAL).
Las teclas de marcación se encenderán.

3 Presione una de las teclas de marcación ((0) a (9)) para almacenar un número de teléfono en ella.
Usted oirá un pitido de confirmación.

4 Introduzca el número de marcación que desee almacenar.
Usted podrá introducir hasta 20 dígitos, incluyendo un tono y una pausa, cada uno de los cuales se contará como un dígito.

5 Presione (PGM).
Usted oirá un pitido largo de confirmación, y el número se almacenará. La tecla TALK se apagará.

Nota

No deje que transcurran más de 20 segundos entre cada paso del procedimiento.

Sugerencias

- Si introdujo un número erróneo, presione (PGM), y vuelva a comenzar desde el principio.
- Utilice el directorio suministrado para anotar los números almacenados en las teclas de marcación abreviada.

Para almacenar un número a marcarse a través de una centralita privada (PBX)

Antes de introducir el número de teléfono en el paso 4, realice lo siguiente:

1 Introduzca el dígito de acceso a la línea exterior (p. ej., 9).

2 Presione (PAUSE).

Para cambiar un número almacenado

Almacene otro nuevo, como se ha descrito anteriormente.

Realización de llamadas con la marcación abreviada

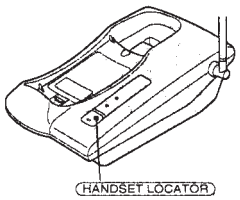
1 Presione (TALK) y espere hasta que se encienda la tecla TALK.

2 Presione (SPEED DIAL).

3 Introduzca el número de marcación abreviada deseado ((0) a (9)).
El número de teléfono almacenado en las teclas de marcación abreviada se marcará.

Buscapersonas

Usted podrá llamar al microteléfono desde la unidad base. Tenga en cuenta que no podrá realizar esto si alguien está utilizando el microteléfono.



Para buscar personas

Presione (HANDSET LOCATOR).
El microteléfono sonará durante unos minuto.
Para parar el sonido, presione (TALK) u (OFF) del microteléfono.

Nota

Usted no podrá comunicarse con el microteléfono cuando el interruptor RING esté en OFF.

Montaje de la unidad base en una pared

1 Levante la lengüeta de colgado.

2 Enchufe el cable de la línea telefónica en la toma LINE y el adaptador de alimentación de CA en la toma DC IN 9V, y enganche los cables.

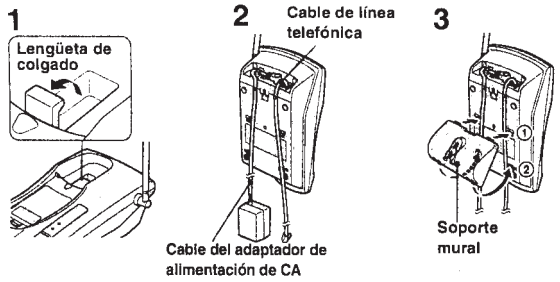
3 Fije el soporte mural en el centro de la unidad base. Alinee las marcas Δ del soporte mural con las de la unidad base.

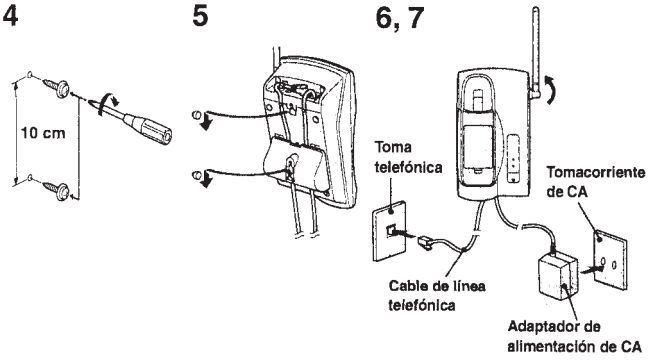
4 Inserte los tornillos suministrados en la pared.

5 Enganche la unidad base en los tornillos.

6 Enchufe el cable de línea telefónica en la toma telefónica.

7 Enchufe el adaptador de alimentación de CA en un tomacorriente de CA. Después levante la antena de forma que quede apuntando hacia el techo.





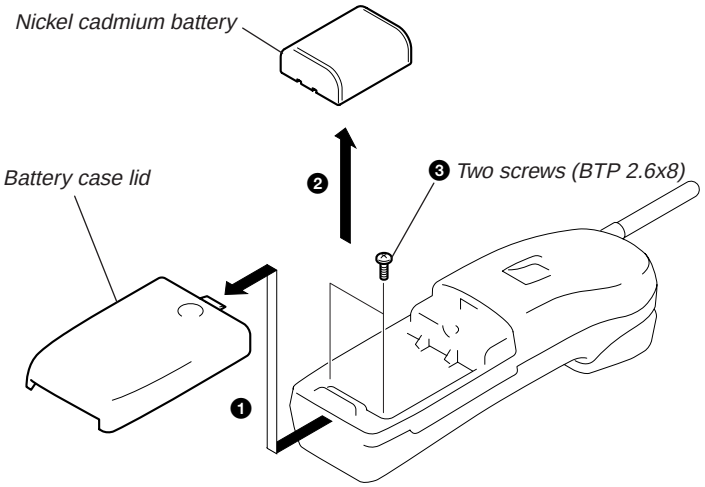
Sugerencia

Para retirar el soporte mural, presione las lengüetas inferiores.

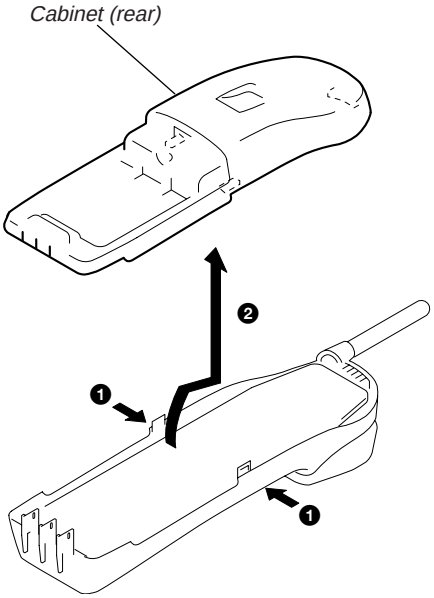
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

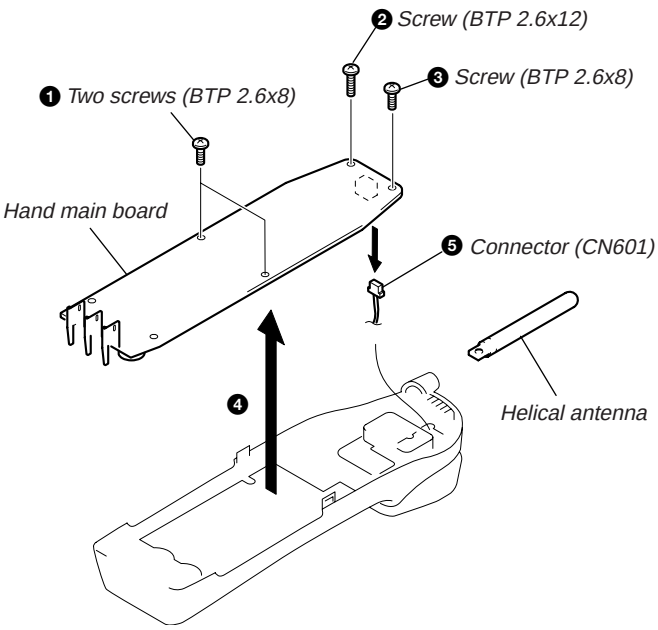
2-1. BATTERY CASE LID (HANDSET)



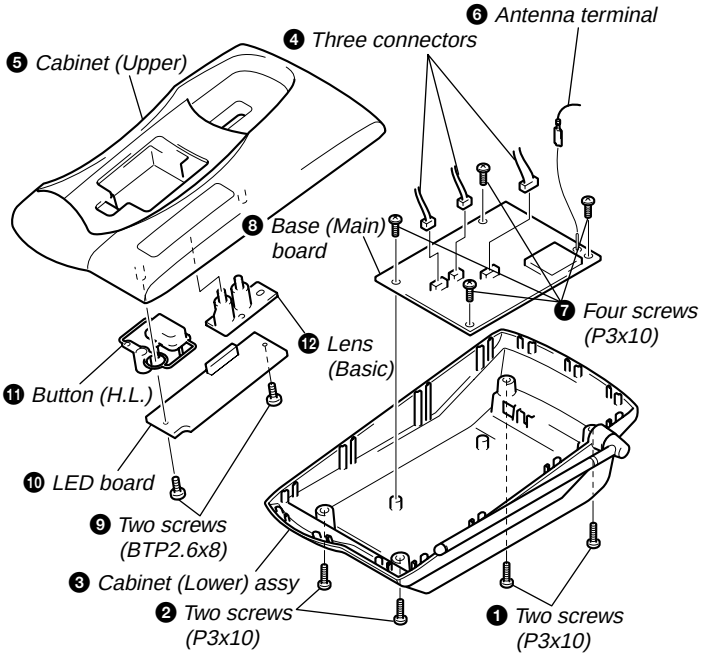
2-2. CABINET (REAR)(HANDSET)



2-3. HAND MAIN BOARD (HANDSET)



2-4. CABINET AND BOARDS (BASE UNIT)



SECTION 3
900 MHz SYSTEM OPERATION

3-1. ACCESS METHOD

1. Transfer format & rate

The transfer format & rate of our system is as follows;

Table 3-1. Transfer method

Access method	FDMA-TDD
Channel number	14 channel
Channel spacing	1.2 MHz
Modulation method	DBPSK
Baseband transfer rate	960 Kbps
Spread method	Direct Sequence Spread Spectrum
Chip rate	12 chips/bit
Data transfer rate	80 Kbps

2. Channel Number & Frequencies

RF channels occupy the frequency band 902 – 928 MHz are numbered 1 to 14.

RF channel numbers & center frequencies are specified as follows.

Table 3-2. Channel number & Channel frequency

Channel Number	Channel Center Frequency (MHz)	
	UNIT CH PLAN	TEST MODE CH PLAN
1	907.2	904.2
2	908.4	904.8
3	909.6	906.0
4	910.8	907.2
5	912.0	908.4
6	913.2	909.6
7	914.4	910.8
8	915.6	912.0
9	916.8	913.2
10	918.0	914.4
11	919.2	915.6
12	920.4	916.8
13	921.6	918.0
14	922.8	919.2
15		920.4
16		921.6
17		922.8
18		924.0
19		925.2
20		925.8

***Note)** The UNIT has 14 channels according to the UNIT CH PLAN while the number of channels which can be used in the test mode are those in the TEST MODE CH PLAN.

3-2. PROTOCOL

1. General

This system realizes the TX/RX superframe by TDD system. The relation of master/slave dose not decide identification regarding the protocol between BASE UNIT and HANDSET, but the initiated side is the master and the requested side is the slave when the RF link has been established.

2. Initial acquisition

In order to establish the RF link between BASE UNIT and HANDSET, both of BASE UNIT and HANDSET need to have the same system ID. When “power” is applied to this system, the system have to do Initial Acquisition in order to have the same system ID. It is to exchange a parameter when the HANDSET is parked on the BASE UNIT, as soon as the system do System Parameters Re-initialization.

3. System parameter re-initialization

This System Parameters Re-initialization can realize that the HANDSET is parked on the BASE UNIT. So after the BASE UNIT recognized to be parked the HANDSET, the BASE UNIT calculates a system parameter, and then it outputs this data from the ARTO port, and then the system establishes the RF link. In order to establish this link, the HANDSET send the A-Frame to the BASE UNIT after the HANDSET received the system parameter, and then the BASE UNIT send the A-Frame to the HANDSET. The process of System Parameters Re-initialization is as follows.

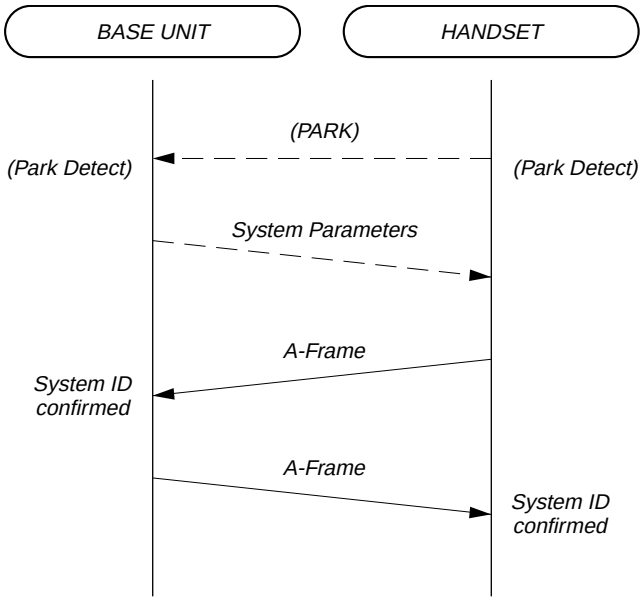


Fig. 3-1. System Parameters Re-initialization

4. Stand-by Mode Operation

(1) HANDSET

When the HANDSET is the stand-by mode (sleep mode), the HANDSET do the intermittent operation for power save, because the HANDSET is the battery operation.

This process of stand-by mode operation is as follows.

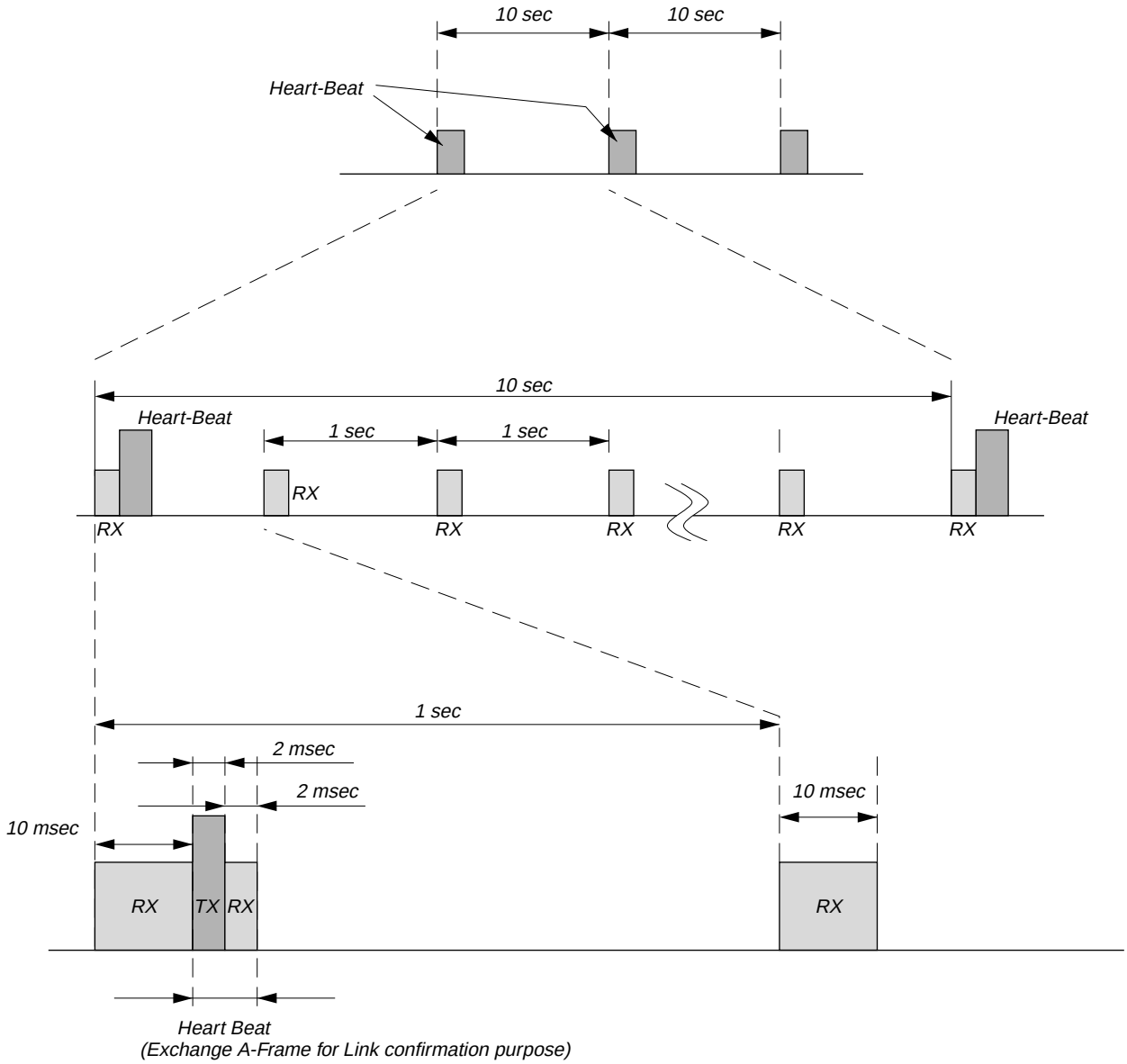


Fig. 3-2. Stand-by mode operation (HANDSET)

(2) BASE UNIT

The BASE UNIT is supplied the power by AC line. While the BASE UNIT is the stand-by, the BASE UNIT is always a wake state. While the BASE UNIT monitors the current channel, the BASE UNIT monitors also the other channel at the same time

Because if the current channel can not use by some interference, the system needs the clear channel information as a part of system parameter for a channel hop.

If the BASE UNIT can not receive the A-Frame of Heart-beat from the HANDSET, it become “link error”, and the system become error recovery mode.

5. Link Establishment

According to the following Fig. 3-1, the requested side for link establishment is the master.
The system have to exchange the A-Frame for link establishment, and each system ID should be the same ID, and then the system link is established.
The protocol and timing chart of link establishment are as follows.

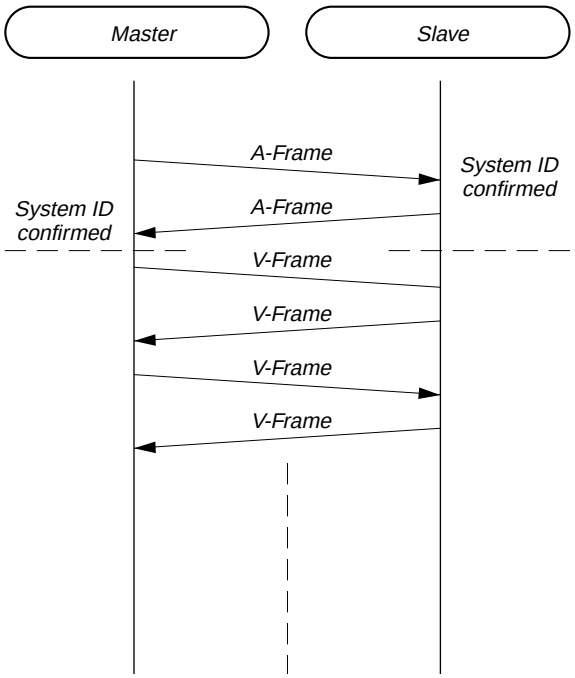


Fig. 3-3. Link Establishment protocol

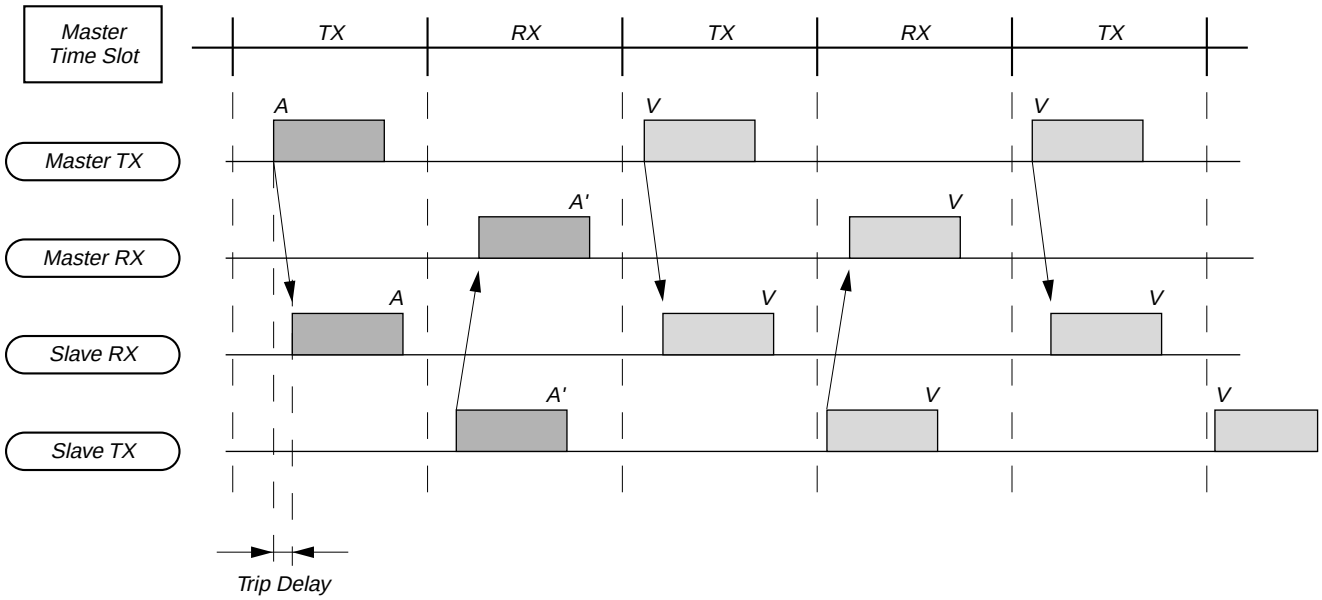


Fig. 3-4. Link Establishment Timing Chart

6. State Change/Tarmination

After the RF link between HANDSET and BASE UNIT was established, a movement of each state (State: ON-Hook, OFF-Hook, PAGE, InterCom, etc) is sent through supervisory bits.

7. Error Recovery

In case of the following situation, The system becomes “Error Recovery Mode”.

(1) The system failed to move to “Heart-Beat” during “Stand-by mode, or failed “link establishment”.

(2) The system failed to keep the link.

SECTION 4
TEST MODE

4-1. BASE UNIT TEST MODE A

Manual System Test Mode

[Start-up]

1. Set the DIAL MODE switch to P (PULSE), and turn on the power while pressing the HANDSET LOCATOR key.
2. Change the DIAL MODE switch from P (PULSE) to T (TONE) ➔ P (PULSE), and release the HANDSET LOCATOR key to start up.
3. After starting up Test Mode A, perform dial test.
4. The TEST MODE A state will be set after the dial test.
5. In test mode idling A, pressing the HANDSET LOCATOR key with the P (PULSE)/T (TONE) switch set to P (PULSE) state switches to BASE UNIT TEST MODE A-1.

DIAL MODE switch	Idle status
P (PULSE) side	Test Mode Idle A-1
T (TONE) side	Test Mode Idle A-2

[Dial Test]

After starting BASE UNIT TEST Mode A, close the circuit for about 500 msec after start, and dial PAUSE, 0 (DP), wait 2 seconds, 1 (Tone), 4 (Tone), 8 (Tone), # (Tone) in this order.

[Ring Detect Test]

1. Rings the Normal Ringer synchronized with an external call coming in, and blinks the IC501 Pin ⑫ (New Call LED/VMWI LED) at the same time.

[Charge Detection and ART0 Output Test]

1. Detects that the charge detection terminal IC501 Pin ㉕ (-PARKP) has turned from H to L, and outputs a square waveform signal (2.4 kbps) from the ART0 terminal.
2. Clears the EEPROM contents at the same time.

[Charge Control Test]

1. When the IC501 Pin ⑱ input (BATT_CHK) changes from L, H, to L during charge detection, the IC501 Pin ⑰ output (CHRG_CTL) will output L, H, LH, L, to H only once.

[Branch Detection Test]

When the shared phone is detected to be off the hook and the Branch detection terminal IC501 Pin ㊹ (EXT_DET) detects L, the VMWI LED is lit. When off-hook is detected and the Branch detection terminal IC501 Pin ㊹ (EXT_DET) detects H, the VMWI LED is turned off.

4-1-1. BASE UNIT Test Mode A-1

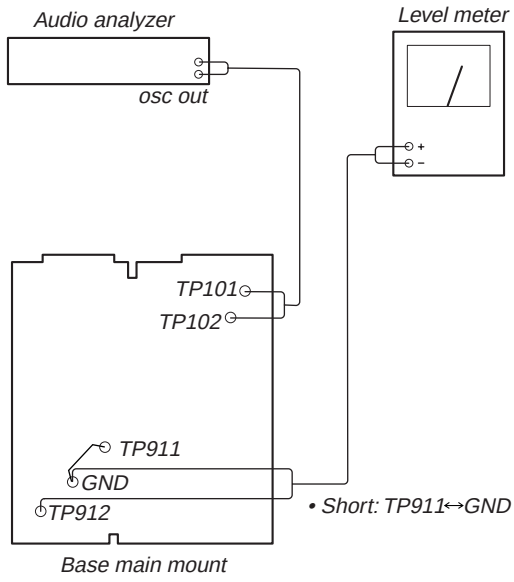
1. In test mode idling A and the P (PULSE)/ T (TONE) switch set to the P (PULSE) state, pressing the HANDSET LOCATOR key changes the mode as shown below.
2. Setting the P (PULSE)/ T (TONE) switch from P (PULSE) to T (TONE) in the BASE UNIT test mode A-1 in any time also enables the mode to be changed to the BASE UNIT test mode idling A.

- This mode is intended for checking that the IC501 line is operating properly. Add the LINEIN signal and check that the signal is output to the SPEAKER OUT.

HANDSET LOCATIOR button pressing count	Test mode
1	CODEC Forward Loopback (L1) (Line: Talking state) (CODEC LINE IN ⟶ SPEAKER OUT)
2	ADPCM Forward Loopback (L2) (Line: Talking state) (CODEC LINEIN ⟶ ADPCM ⟶ CODEC SPERKER OUT)
3	Does not function
4	Returns to BASE UNIT TEST MODE • IDLING A

Note: If the LEDs are lit due to the idling state test, clear all the LEDs, and return to the idling state.

[Base Set AUDIO Input/Output Level test
[CODEC Forward Loop Back (LI) Mode]]



Setting:
Setting: OSC=–13.0 dBV (Open terminal)
MOD=1 kHz

4-2. BASE UNIT TEST MODE B

Manual System Test Mode

[Start-up]

1. Set the DIAL MODE switch to T (TONE), and turn on the power while pressing the HANDSET LOCATOR key.
2. Change the DIAL MODE switch from T (TONE) to P (PULSE)➔ T (TONE), and release the HANDSET LOCATOR key to start up.
3. The TEST MODE B state will be set.
4. In test mode idling B, pressing the HANDSET LOCATOR key with the P (PULSE)/T (TONE) switch set to T (TONE) state switches to BASE UNIT TEST MODE B-1.

DIAL MODE switch	Idle status
T (TONE) side	Test Mode Idle B-1 *1
P (PULSE) side	Test Mode Idle B-2 *2

*1 Radio block: TDD mode (master timing)
Audio block: Line speech status

*2 Radio block: Standby status
Audio block: Line open

[Stutter Tone Detection]

1. Monitors the stutter tone detection terminal IC501 pin ⑮ (Stutte_Det) at all times and lights the VMWI LED when 5 pulses are detected like in actual operations.

4-2-1. BASE UNIT Test Mode B-1

1. In test mode idling B with the P (PULSE)/T (TONE) switch set to the T (TONE) state, pressing the HANDSET LOCATOR key changes the mode as shown below.
2. Setting the P (PULSE)/T (TONE) switch from T (TONE) to P (PULSE) in BASE UNIT test mode B-1 any time also enables the mode to be changed to BASE UNIT test mode idling B.

HANDSET LOCATOR button pressing count	Radio mode
1	1ch single carrier continuous transmission mode (high power)
2	10ch single carrier continuous transmission mode (high power)
3	20ch single carrier continuous transmission mode (high power)
4	1ch continuous transmission mode (high power)
5	1ch continuous transmission mode (middle power)
6	1ch continuous transmission mode (low power)
7	10ch continuous transmission mode (high power)
8	10ch continuous transmission mode (middle power)
9	10ch continuous transmission mode (low power)
10	20ch continuous transmission mode (high power)
11	20ch continuous transmission mode (middle power)
12	20ch continuous transmission mode (low power)
13	1ch continuous reception mode
14	10ch continuous reception mode
15	20ch continuous reception mode
16	Returns to BASE UNIT TEST MODE • IDLING B

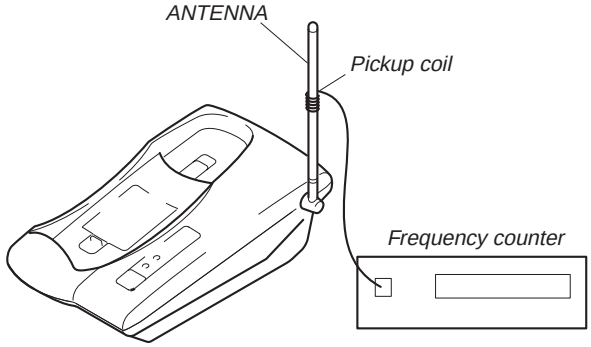
Note: If the LEDs are lit due to the idling state test, clear all the LEDs, and return to the idling state.

4-2-2. Ending the Base Unit Test Mode

1. To end the base unit test mode, turn off the power of the base unit.

[BASE UNIT carrier frequency measurement
[Single carrier 1CH continuous transmission]]

Setting:



Spec: 904.2 MHz ± 27KHz

4-3. HANDSET TEST MODE

[Start-Up]

1. Press the TALK, 0, and 1 keys simultaneously to start.
2. The normal ringer is rung at a high level for 500 msec after starting, and the TALK LED and BATT LOW LED blink together. The HANDSET TEST MODE and idling state LEDs will remain lit.
3. The unit sets into the test command key input standby state. The state can be changed to a desired test mode item by pressing a command key.
4. All LEDs (S9001) light up in the HANDSET TEST MODE idling state.

[Battery Low Detection Test]

1. In the HANDSET TEST MODE idling state, if Low Battery is detected (if the battery input terminal (IC401 Pin ⑦⑦) is grounded), the TALK (Basic) LED goes off. A confirmation beep which lights up the BATT LOW LED sounds.
2. If the Low Battery state is cleared (if the battery input terminal (IC401 Pin ⑦⑦) is released its grounding), the TALK (Basic) LED is lit. The BATT LOW LED goes off and the previous HANDSET TEST MODE idling state is returned.
3. The mode cannot be changed to other HANDSET TEST MODE with Low Battery detected (Battery input terminal (IC401 Pin ⑦⑦) is grounded.

[Setting the Handset Test Mode by Test Command Key Inputs]

By entering test commands from the keypad in the HANDSET TEST MODE, the following test items can be set.

- However, to set a test with a different test group, be sure to return to test mode first and then set the desired mode.

A) Test Resetting

Command	Mode/Operation
0-0-#	Ends the test mode. Clears the EEPROM data. Sounds the ACK beep if OK. Exits the test mode and returns to the normal operating state.
0-1-#	Returns to test mode idling.

B) Continuous Reception Test

Command	Mode/Operation
1-1-#	1ch continuous reception (LNA, AGC ON)
*	CH increment. 1ch → 2ch → 3ch → 4ch →..... → 20ch

Note: In the continuous reception test, the "All 1's Data" in ASIC should be used.

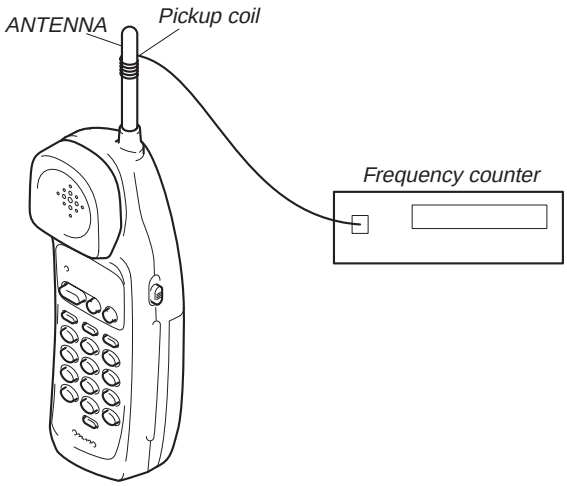
C) Continuous Transmission Test

Command	Mode/Operation
2-1-#	1ch continuous transmission (TX power High)
2-2-#	1ch continuous transmission (TX power Mid)
2-3-#	1ch continuous transmission (TX power Low)
2-4-#	Single carrier 1ch continuous transmission (TX power High)
*	CH increment 1ch → 2ch → 3ch → 4ch →..... → 20ch

Note: In the continuous reception test, the "All 1's Data" in ASIC should be used.

[Handset AUDIO Input/Output Level Measurement [CODEC Forward Loopback (L1); 2-4-#]]

Setting:



Spec: 904.2 MHz ± 27KHz

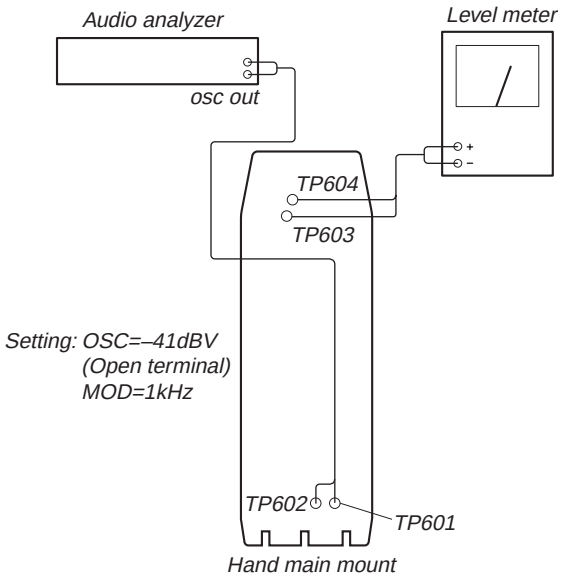
D) Loopback Test

Command	Mode/Operation
3-1-#	CODEC Forward Loopback (L1) (MIC → SP) (within CODEC)
3-2-#	ADPCM Forward Loopback (L2) (MIC → CODEC → ADPCM → CODEC → SP)
3-3-#	Does not function.

Note: In the loopback test, the sound route of the handset is set to the normal TALK state (Set Mic-in and SPKO to be effec tive).

[Handset AUDIO Input/Output Level Measurement [CODEC Forward Loopback (L1); 3-1-#]]

Setting:



Spec: -27.5 to -23.5 dBV

E) MMI Test

Command	Mode/Operation
5-1-#	Key matrix test
5-2-#	Does not function
5-3-#	Does not function
5-4-#	LED OFF 1) Press the [SPEED] key and turn off the BATT LOW LED. 2) Press the [SPEED] key and turn off the TALK LED. 3) Press the [SPEED] key and turn off the DIAL LED. 4) Press the [SPEED] key and turn on all LEDs and return to step 1.

Note: Key Matrix Test: 5-1-#

- If the keys are pressed continuously in the following desig nated order correctly, a confirmation beep sounds.
  If pressed incorrectly, an error beep sounds and the unit re turns to the idling state.

[TALK] → [OFF] → [FLASH] → [REDIAL] → [PGM] →
[PAUSE] → [1] → [2] → [3] → [4] → [5] → [6] →
[7] → [8] → [9] → [*] → [0] → [#] → [SPEED]

F) Others

Command	Mode/Operation
7-0-#	Clears all EEPROM data.
7-1-#	Clears EEPROM ID data. If cleared successfully, sounds the ACK beep.
9-0-#	Battery Save Mode

4-3-1. Ending the HANDSET Test Mode

1. Entering the command "0-0-#" from the keypad in any state of the HANDSET TEST MODE ends the HANDSET MODE and returns the normal mode.

4-4. RF TESTING

This test is for checking the RF system without disassembling the set in servicing. Perform measurement using the spectrum analyzer and jig antenna.

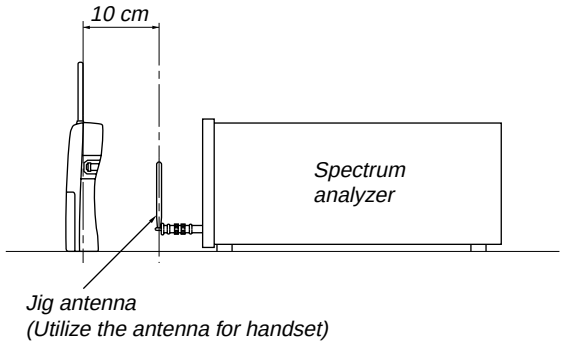
4-4-1. RF Testing method

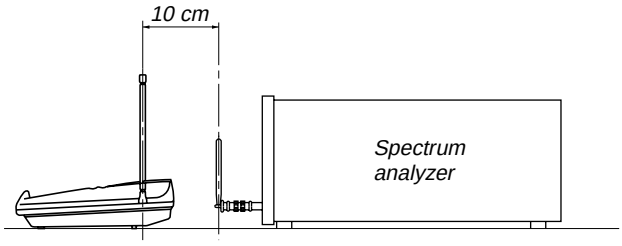
Please follow the below instruction to perform RF test.

[Setting Condition]

Connect a receiving antenna to RF INPUT of Spectrum analyzer and set the unit 10 cm (4 inches) away from the receiving antenna.

Measuring tool: Spectrum analyzer (equivalent to HP8595E)
Jig: Receiving antenna (for Spectrum analyzer)





[Check the Transmission Wave]

Purpose

It is necessary to check spectrum wave of transmission wave which is an important factor in order to confirm operational performance of Spread Spectrum models. If this wave deviates from correct wave form, normal data transmission cannot be made and, as a result of that, possibility that occurrence of mute increases and communication distance becomes shorter will increase.

Measuring process

- Setting Spectrum analyzer:
  Center frequency : 904.2 kHz (CH1)
  RBW : 30 kHz
  VBW : 30 kHz
  Span : 3 MHz (or 5MHz)
- Setting Test mode:
  Continuous Transmit mode (CH1 High Power)
  (Refer to "Test Mode" on page 10)
- Measurement:
  Measure transmitting wave.
- Specifications:
  Acceptable level [XdB] difference between the highest peak and the lowest peak of odd side band (the first to seventh side band from Center Frequency ; Transmission Frequency f_0: CH1) is under 10 dB. (Refer Fig. 1 and Fig. 2)
  If output wave form deteriorates, side band appears like Fig. 3 and Fig. 4.

- **Transmission Wave:**

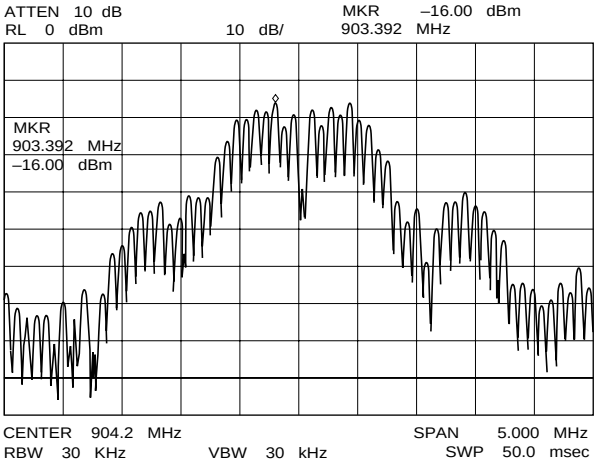


Fig. 1

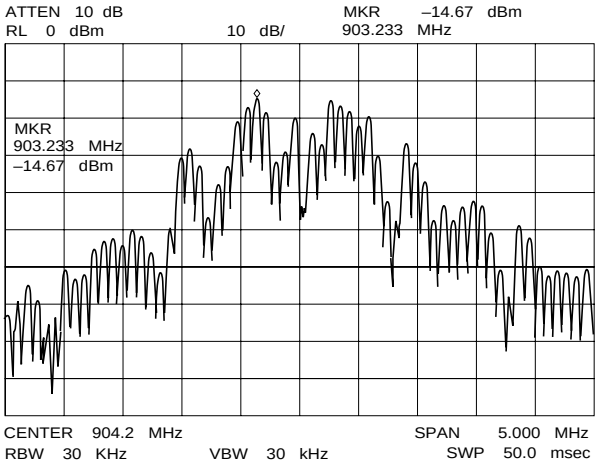


Fig. 2

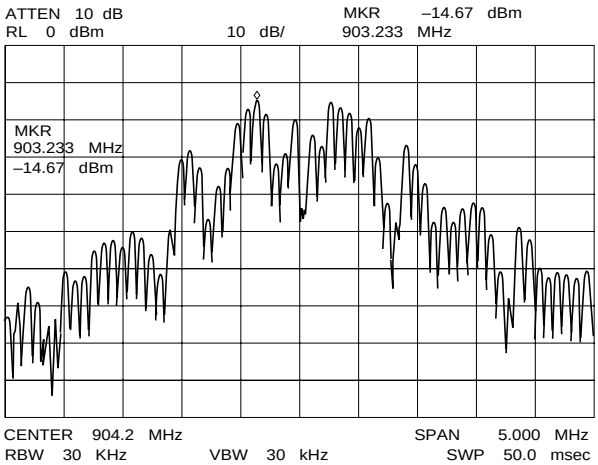


Fig. 3

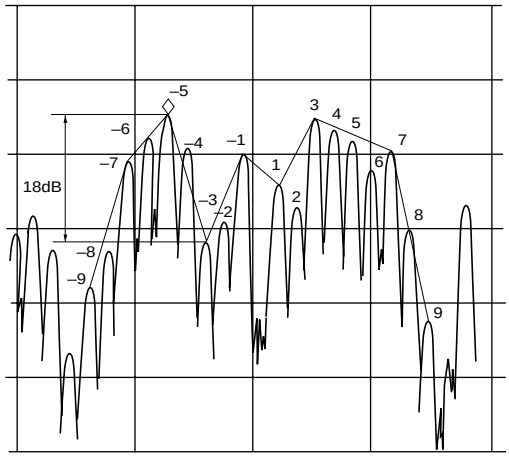


Fig. 4

[Check Center Frequency]

Measuring process

- Setting Spectrum analyzer:
  - Center frequency : 904.2 MHz (CH1)
  - RBW : 10 kHz
  - VBW : 10 kHz
  - Span : 1 MHz
- Setting Test mode:
  Continuous Transmit mode (CH1 High Power)
  (Refer to “Test Mode” on page 21)
- Measurement:
  Measure transmitting wave f_0 (Formula of center frequency)
  (Refer Fig. 5)
- Specification:
  904.2 MHz ± 27 kHz

- **Center Frequency:**

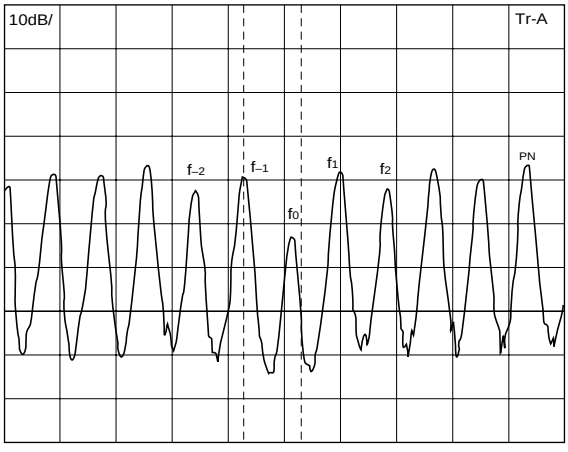


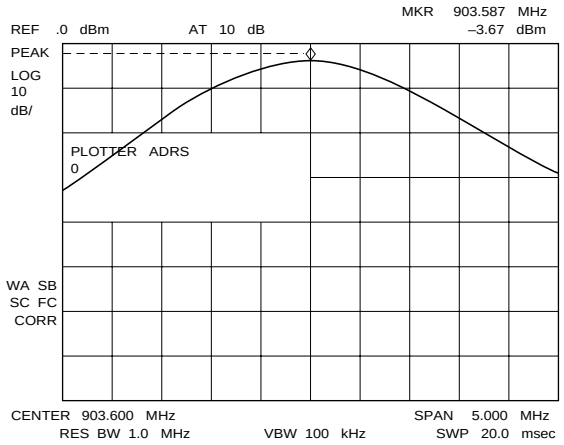
Fig. 5

[Confirm Transmitting output]

Measuring process

- Setting Spectrum analyzer:
  - Center frequency : 904.2 MHz (CH1)
  - RBW : 1 MHz
  - VBW : 100 kHz
  - Span : 5 MHz
- Setting Test mode:
  Continuous Transmit mode (CH1 High Power)
  (Refer to “Test Mode” on page 21)

- Measurement:
  Measure peak level by Spectrum analyzer.



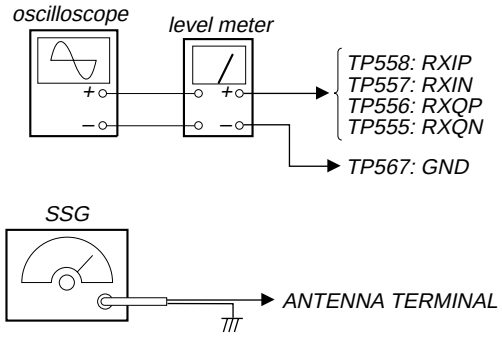
- Specification:
  HANDSET MIN –17 dBm
  (at High power: Include location loss)
  BASE UNIT MIN –18 dBm
  (at High power: Include location loss)

SECTION 5
ELECTRICAL ADJUSTMENTS

5-1. BASE UNIT SECTION

• Make the set in Test mode (see page 10)

1. Checking RX I&Q Output Level
Setting:

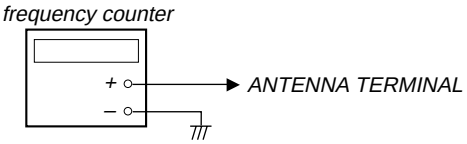


Procedure:
1. Place the base unit in the Continuous Receive mode (CHI, LNA ON, AGC ON).
2. Set the SSG frequency to the frequency on CHI + 300 kHz, and the RF output level to - 95 dBm.
3. Measure the output level of RXIN, RXIP, RXQN, and RXQP with a level meter. At this time, confirm with an oscilloscope that a sine wave of 300 kHz is output.
4. Confirm that the measured output level is -25.0 to -19.0 dB V. IF IC501 was replaced (there is no ID data), the output level is -30.0 to -24.0 dB V.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

* For the frequency on each channel, see page 7.

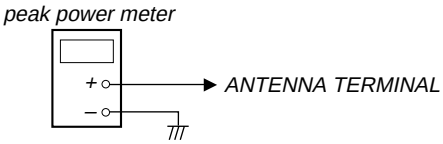
2. Checking TX Center Frequency
Setting:

• short: TP515⟷ TP567 (GND)



Procedure:
1. Short TP515 (GND) and TP567 (GND) on the BASE MAIN board in the base unit.
2. Place the base unit in the Continuous Transmit more (CH1, High power).
3. Measure the ANT OUT frequency of the RF module in the base unit using a frequency counter.
4. Coufirm that the measured frequency is 904.200 MHz ± 27kHz.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

3. Checking TX Output
Setting:



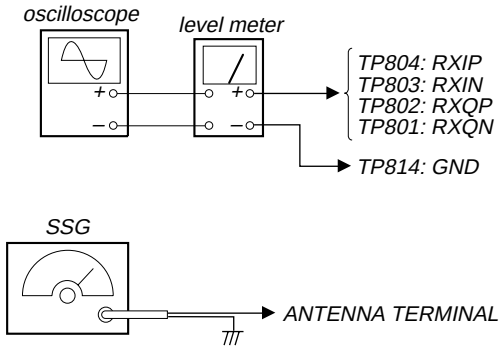
Procedure:
1. Place the base unit in the Continuous Transmit more (CH1, High power).
2. Measure the ANT OUT output of the RF module in the base unit using a peak power meter.
3. Confirm that the measured output is 85 mW (MIN 30 mW).
4 .Also, execute steps 1 through 3 for the channels 10 and 20.
   CH10: 80 mW (MIN 25 mW)
   CH20: 80 mW (MIN 25 mW)

5-2. HANDSET SECTION

• Make the set in Test mode (see page 10)

1. Checking RX I&Q Output Level

Setting:



Procedure:

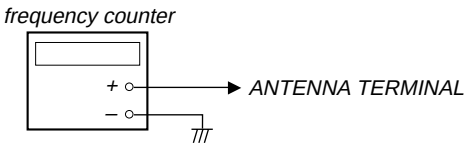
1. Place the bandset in the Continuous Receive mode (CHI, LNA AGC ON).
2. Set the SSG frequency to the frequency on CHI + 300 kHz, and the RF output level to - 95 dBm.
3. Measure the output level of RXIN, RXIP, RXQN, and RXQP with a level meter. At this time, confirm with an oscilloscope that a sine wave of 300 kHz is output.
4. Confirm that the measured output level is -25.0 to -19.0 dB V. IF IC401 was replaced (there is no ID data), the output level is -30.0 to -24.0 dB V.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

* For the frequency on each channel, see page 7.

2. Checking TX Center Frequency

Setting:

• short: TP820 ⟷TP814 (GND)

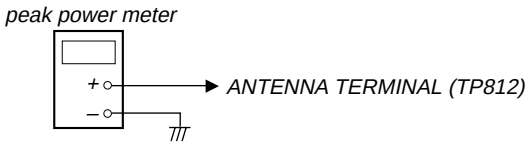


Procedure:

1. Short TP555 (GND) and TP814 (GND) on the HAND MAIN board in the handset.
2. Place the handset in the Continuous Transmit more (CH1, High power).
3. Measure the ANT OUT frequency of the RF module in the hand set using a frequency counter.
4. Coufirm that the measured frequency is 904.200 MHz ± 27kHz.
5. Also, execute steps 1 through 4 for the channels 10 and 20.

3. Checking TX Output

Setting:

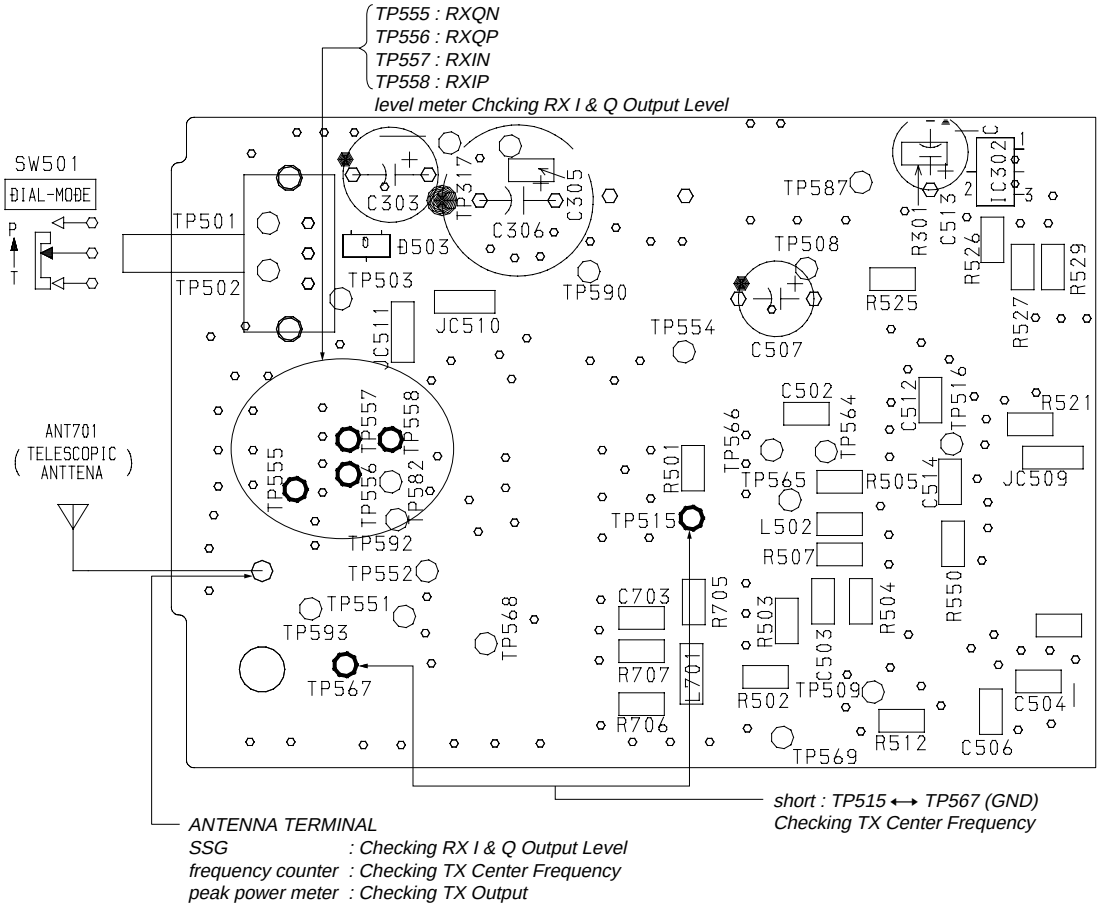


Procedure:

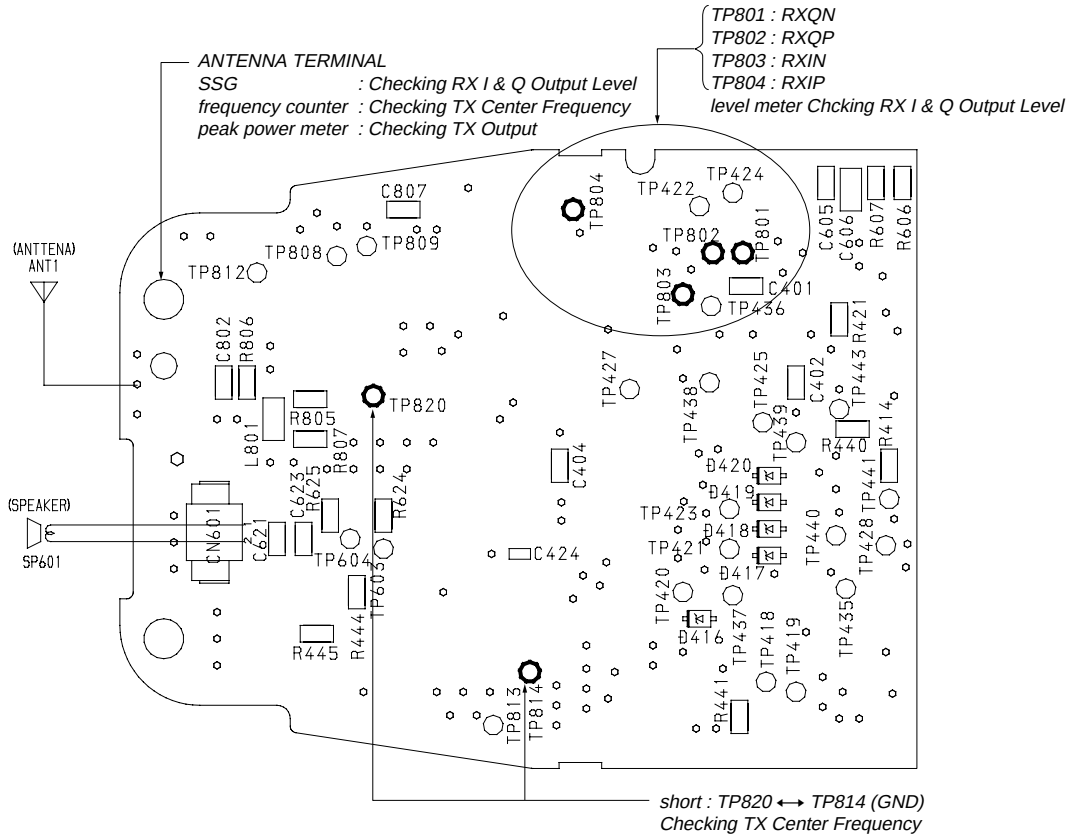
1. Place the handset in the Continuous Transmit more (CH1, High power).
2. Measure the ANT OUT output of the RF module in the handset using a peak power meter.
3. Confirm that the measured output is 62 mW (MIN 25 mW).
4. Also, execute steps 1 through 3 for the channels 10 and 20.
   CH10: 64 mW (MIN 25 mW)
   CH20: 64 mW (MIN 25 mW)

ADJUSTMENT LOCATION:

[BASE MAIN BOARD] (Conductor Side)



[HAND MAIN BOARD] (Component Side)



SECTION 6
DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

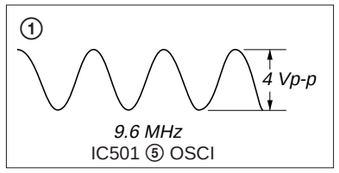
For schematic diagrams.
Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

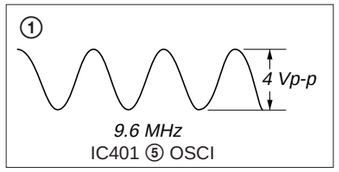
- B+ : B+ Line.
- Power voltage is dc 9V and fed with regulated dc power supply from external power voltage jack (J301 on the BASE MAIN board).
- Power voltage is dc 12V and fed with regulated dc power supply from modular jack (MJ101 on the BASE MAIN board) with 100 Ω in series.
- Power voltage is dc 3.6V and fed with regulated dc power supply from battery jack (HAND MAIN board).
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : Talk
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : RX
  ◀ : TX
  ◁ : bell

Note on Printed Wiring Boards:
Note:
- o——— : parts extracted from the component side.
- ▒▒▒ : Pattern from the side which enables seeing.

WAVEFORMS
– BASE UNIT SECTION –

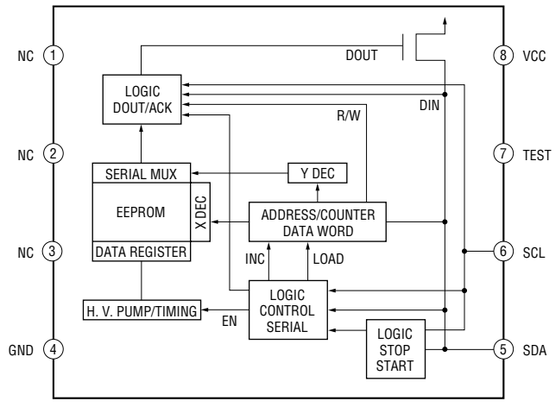


– HAND SET SECTION –



6-1. IC BLOCK DIAGRAM

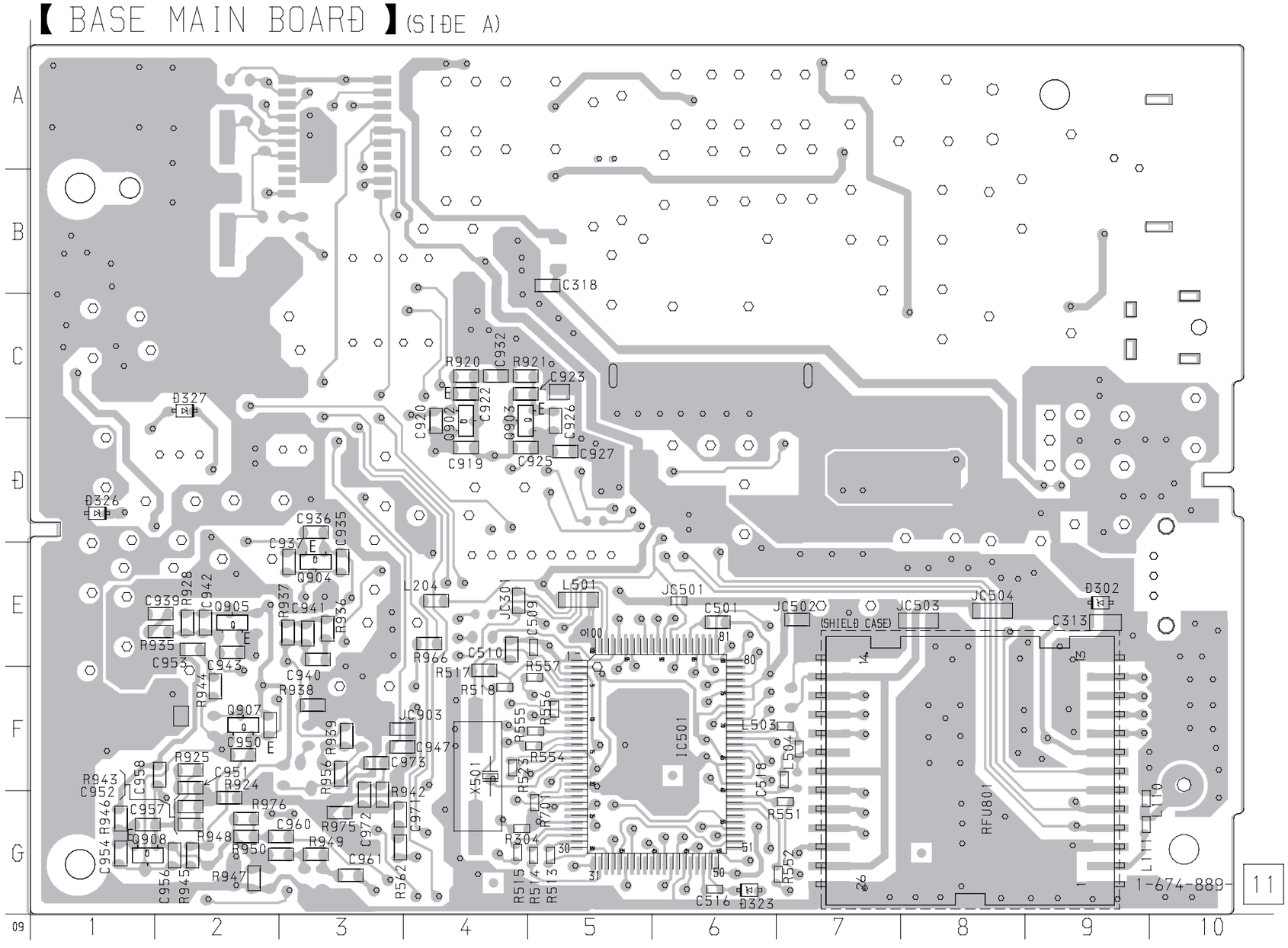
- **HAND MAIN Board**
  IC502 S-24C01AFJA-TB-01



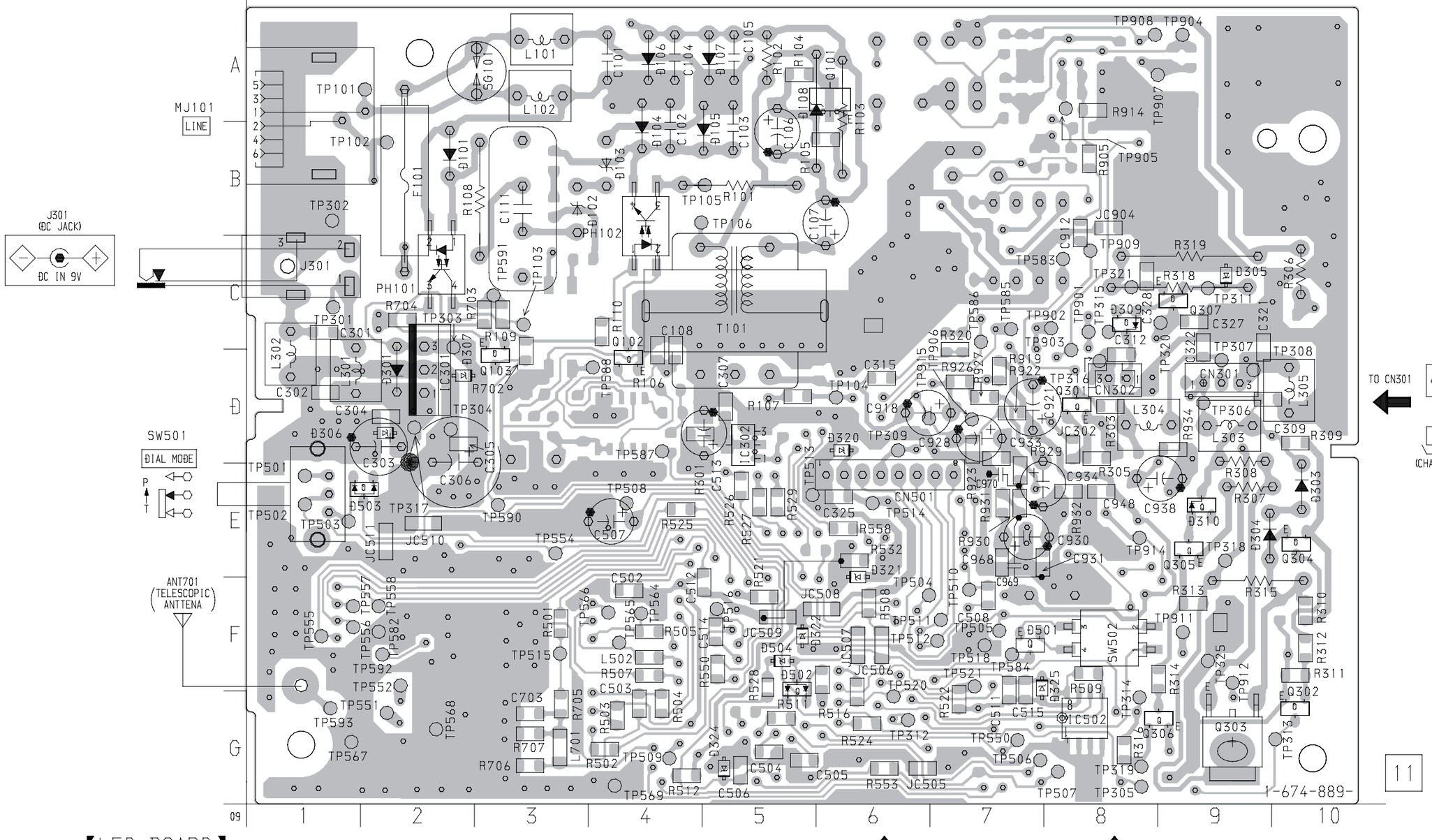
6-2. PRINTED WIRING BOARD – BASE UNIT SECTION –

- **Semiconductor Location**

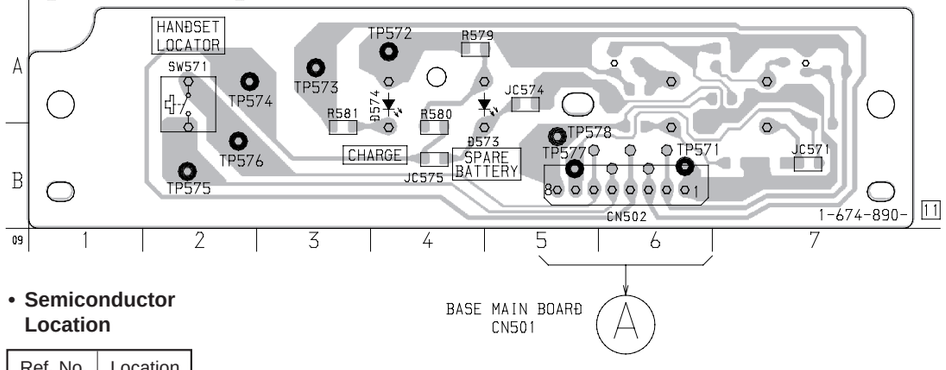
Ref. No.	Location
D323	G-6
D326	D-1
D327	C-2
IC501	F-6
Q902	D-4
Q903	D-4
Q904	E-3
Q905	E-2
Q907	F-2
Q908	G-1



【 BASE MAIN BOARD 】(SIDE B)



【LED BOARD】



- **Semiconductor Location**

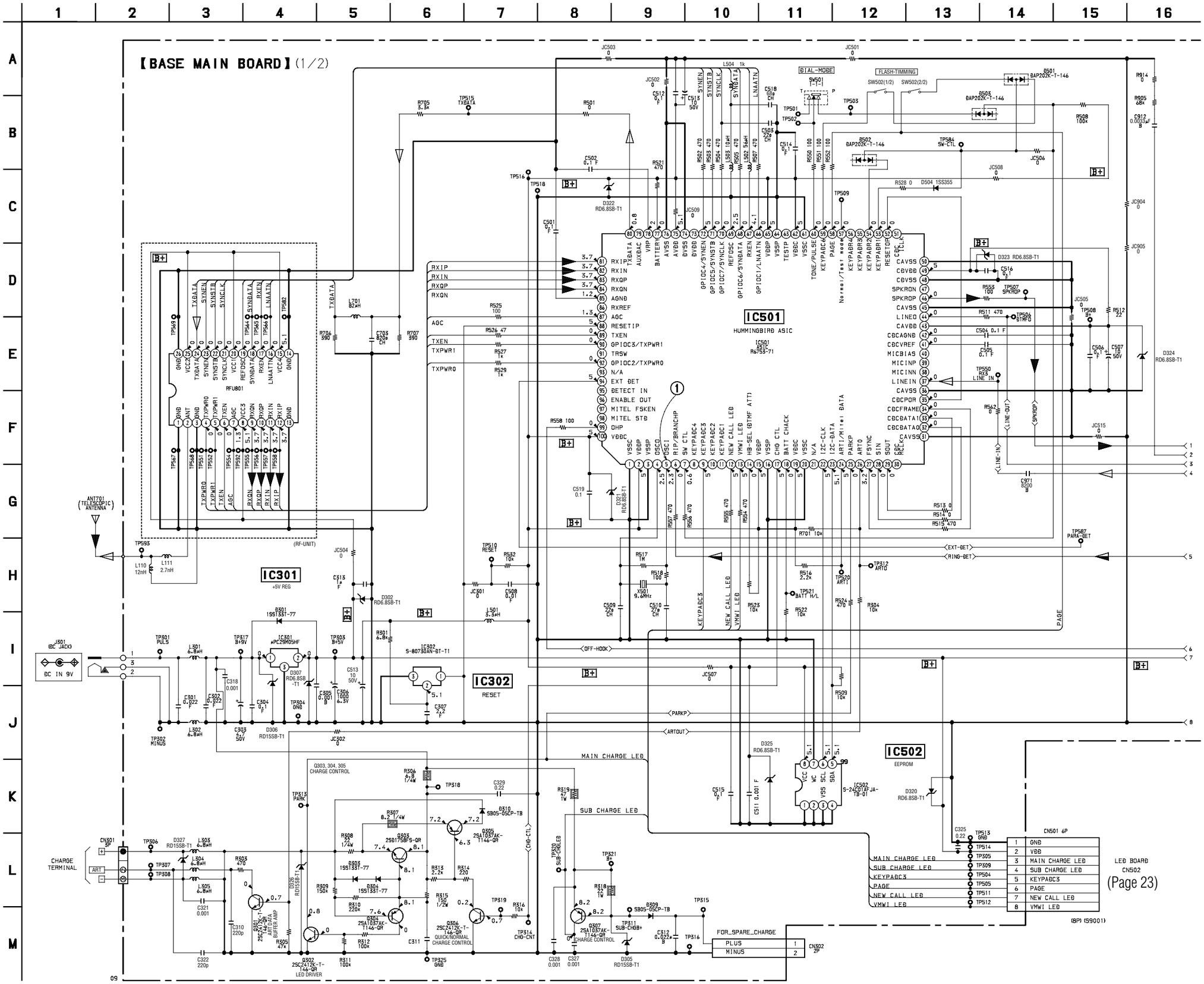
Ref. No.	Location
D573	A-4
D574	A-4

- **Semiconductor Location**

Ref. No.	Location
D101	B-2
D102	B-3
D103	B-4
D104	B-4
D105	B-5
D106	A-4
D107	A-5
D108	A-6
D301	D-2
D303	E-10
D304	E-9
D310	E-9
D501	F-7
D502	F-5
D503	E-2
D504	F-5
IC301	D-2
IC302	D-5
IC502	G-7
Q101	A-6
Q102	D-4
Q103	D-3
Q301	D-7
Q302	G-10
Q303	G-9
Q304	E-10
Q305	E-9
Q306	G-9
Q307	C-9

6-3. SCHEMATIC DIAGRAM – BASE UNIT (1/2) SECTION –

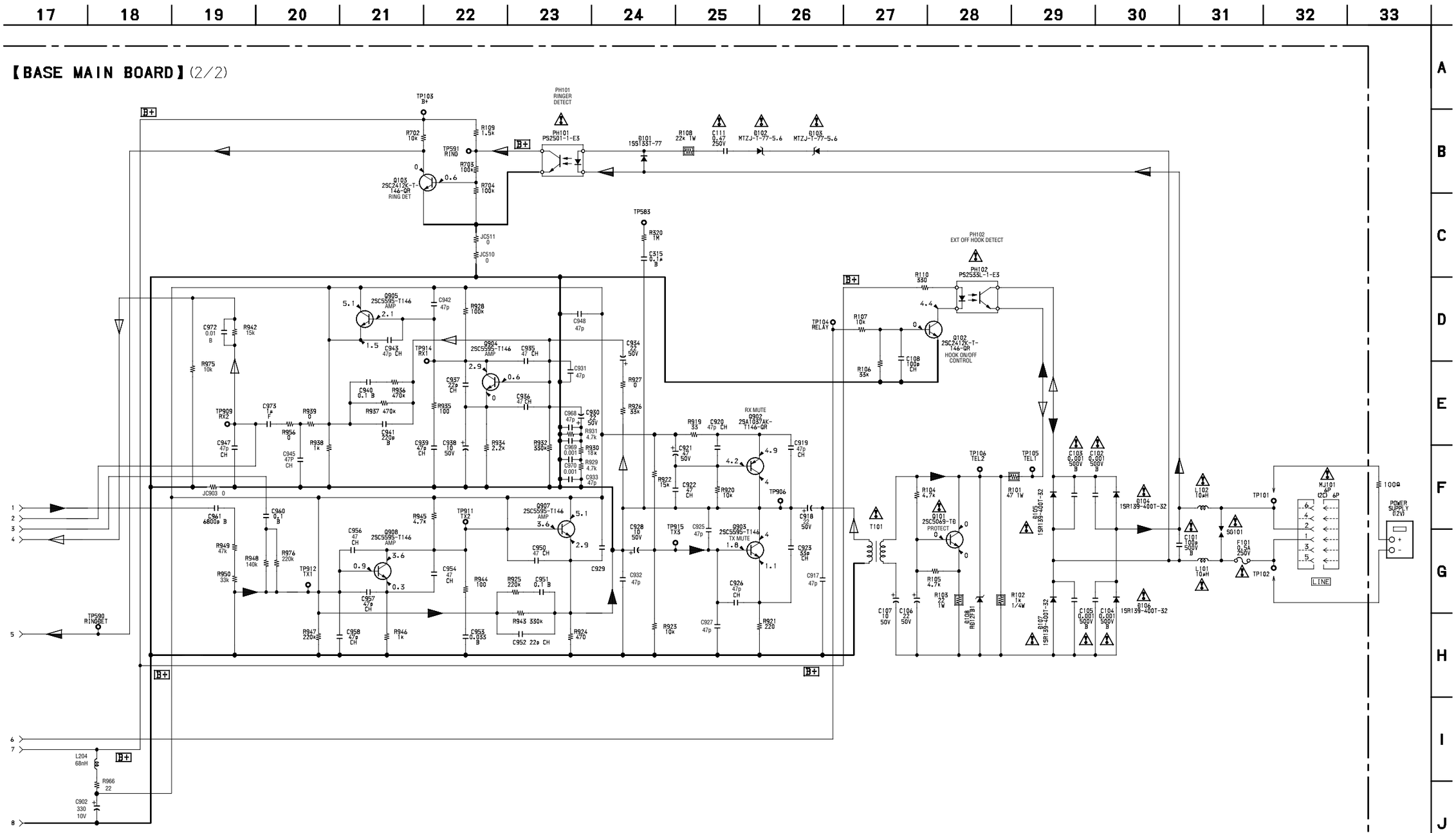
- See page 19 for Waveforms.
- See page 19 for IC Block Diagram.
- See page 20 for Printed Wiring Board.
- See page 26 for IC Pin Functions.



6-4. SCHEMATIC DIAGRAM – BASE UNIT (2/2) SECTION –

• See page 20 for Printed Wiring Board.

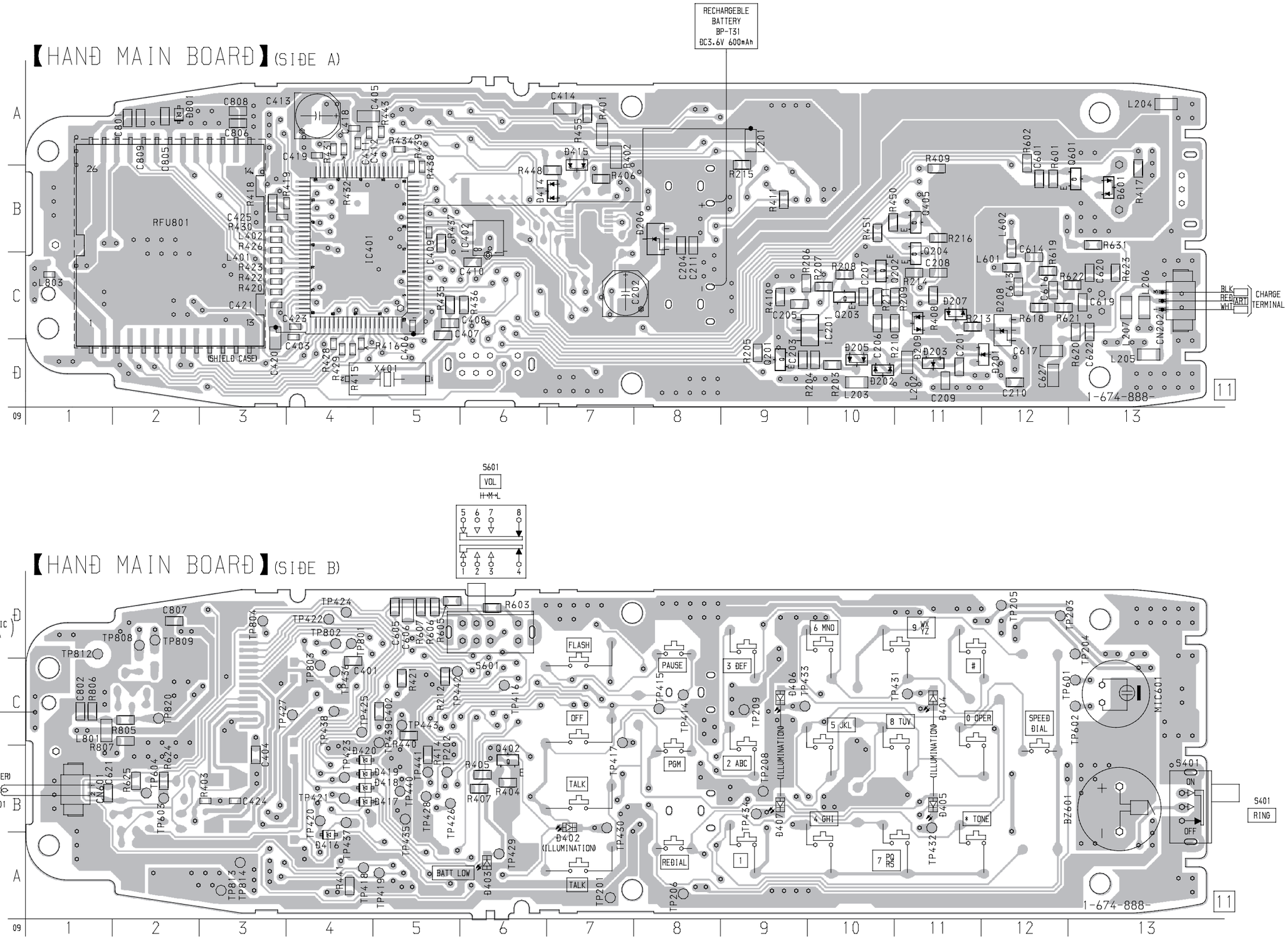
【BASE MAIN BOARD】(2/2)



6-5. PRINTED WIRING BOARD – HANDSET SECTION –

- **Semiconductor Location**

Ref. No.	Location
D201	D-12
D202	D-10
D203	D-11
D205	D-10
D206	C-8
D207	C-11
D208	D-12
D209	D-11
D414	B-7
D-601	B-13
D801	A-2
IC201	D-10
IC401	C-4
IC402	C-6
Q201	D-9
Q202	C-10
Q203	C-10
Q204	C-11
Q601	B-13

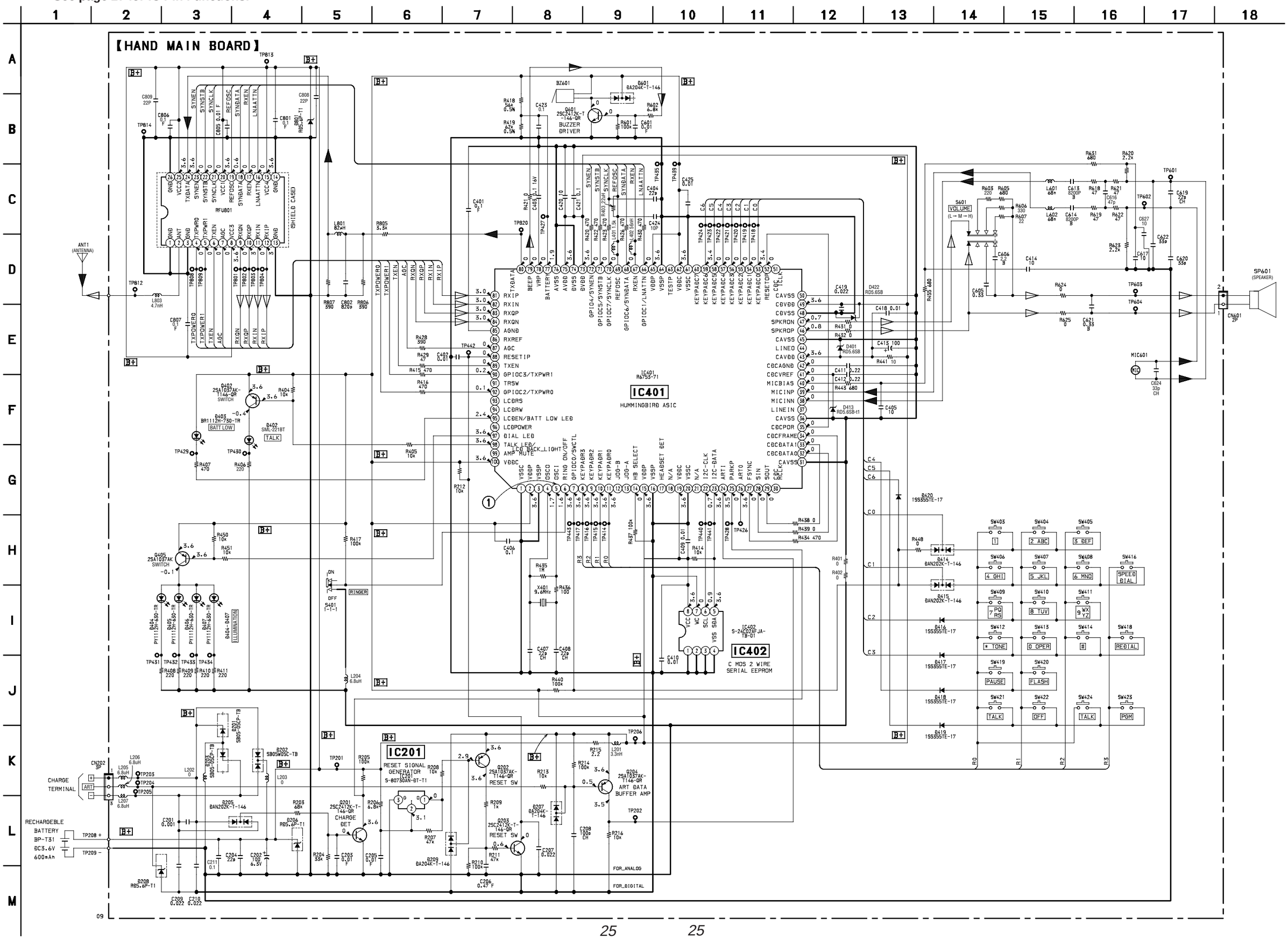


- **Semiconductor Location**

Ref. No.	Location
D402	B-7
D403	A-6
D404	B-11
D405	C-11
D406	C-9
D407	B-9
D416	A-4
D417	A-3
D418	A-3
D419	A-3
D420	A-3
Q402	B-6

6-6. SCHEMATIC DIAGRAM – HANDSET SECTION –

- See page 19 for Waveforms.
- See page 27 for IC Pin Functions.



6-7. IC PIN FUNCTIONS

• BASE MAIN BOARD IC501 R6753-71 (HUMMINGBIRD ASIC)

Pin No.	Pin Name	I/O	Function
1	VSSC	–	VSS supply to core
2	VDDP	–	VDD supply to pad ring
3	VSSP	–	VSS supply to pad ring
4	OSCO	O	9.6 MHz crystal oscillator output
5	OSCI	I	9.6 MHz crystal oscillator input
6	RIP/BRANCHIP	I	Detection signal input of the ringer coming
7	SW CTL	I	Switch control read input
8	KEYPADC4	–	Not used (open)
9	KEYPADC3	–	Keypad read input (for page switch)
10	KEYPADC2	–	Not used (open)
11	KEYPADC1	–	Not used (open)
12	NEW CALL LED	O	NEW CALL LED output
13	VMWI LED	O	VMWI LED output
14	HB-SELECT	I	HAND/BASE select input
15	VDDP	–	VDD supply to pad ring
16	VSSP	–	VSS supply to pad ring
17	CHG CTL	O	Charge detection control terminal
18	BATT CHACK	I	Battery voltage detection input terminal
19	VDDC	–	VDD supply to core
20	VSSC	–	VSS supply to core
21	N/A	–	Not used (open)
22	I2C-CLK	O	Clock signal output to the EEPROM
23	I2C-DATA	I/O	Two-way data bus with the EEPROM
24	ARTI	I	ART input
25	PARKP	I	Park input; active low on base station, active high on handset
26	ARTO	O	ART output
27	SFYNC	–	Frame sync
28	SIN	I	Serial data input
29	SOUT	O	Serial data output
30	CDCMCKL	–	Main clock input Not used (open)
31	CAVSS	I	Analog 0V power supply
32	CDCDATAO	O	Codec data output
33	CDCDATAI	I	Codec data input
34	CDCFRAME	–	Codec flame
35	CDCPOR	I	Reset input, active low
36	CAVSS	I	Analog 0V power supply
37	LINEIN	I	Analog input to line pre-amp, ADC channel
38	MICINN	–	Negative differential analog input to microphone pre-amp, ADC channel Not used (open)
39	MICINP	–	Positive differential analog input to microphone pre-amp, ADC channel Not used (open)
40	MICBIAS	–	2.2V nominal DC bias source for electret microphone Not used (open)
41	CDCVREF	O	Analog reference voltage output Bypass to AVSS with 0.1mF capacitor
42	CDCAGND	O	Analog ground bias output Bypass to AVSS with 0.1mF capacitor
43	CAVDD	I	Analog power supply
44	LINEO	O	Line driver output, DAC channel
45	CAVSS	I	Analog 0V power supply
46	SPKROP	O	Positive speaker driver output, DAC channel
47	SPKRON	–	Negative speaker driver output, DAC channel Not used (open)
48	CDVSS	I	Digital 0V power supply
49	CDVDD	I	Digital power supply, 2.7-5.5 Volts
50	CAVSS	I	Analog 0V power supply

Pin No.	Pin Name	I/O	Function
51	CDCICLK	–	Bit clock input/output for digital serial interface Not used (open)
52	RESETOP	O	Codec reset
53	KEYPADR1	–	Not used (open)
54	KEYPADR2	I	Dial mode switch input terminal
55	KEYPADR3	I	Dial mode switch input terminal
56	KEYPADR4	–	Not used (open)
57	NOMAL/TEST MODE	–	TEST MODE terminal
58	PAGE	O	Page switch on/off control signal output terminal
59	KEYPADC6	–	Not used
60	TONE/PULSE	I	Dial mode switch input terminal
61	VSSC	–	VSS supply to core
62	VDDC	–	VDD supply to core
63	NC	–	Not used (open)
64	VSSP	–	VSS supply to pad ring
65	VDDP	–	VDD supply to pad ring
66	GPIOC1/LNATTN	O	LNA select
67	RXEN	O	Receive enable
68	GPIOC6/SYNDATA	O	Synthesizer data
69	REFOSC	–	9.6 MHz clock used by synthesizer
70	GPIOC7/SYNCLK	O	Synthesizer clock
71	GPIOC5/SYNSTB	O	Synthesizer strobe
72	GPIO4/SYNEN	O	Synthesizer power
73	DVDD	–	VDD supply to A/D converters
74	DVSS	–	VSS supply to A/D converters
75	AVDD	–	VDD supply to analog
76	AVSS	–	VSS supply to analog
77	BATTERY	I	Battery voltage input
78	VRP	O	Analog voltage reference output
79	AUXDAC	–	AFC DAC output Not used (open)
80	TXDATA	O	Transmitter data
81	RXIP	I	Receiver I positive differential input
82	RXIN	I	Receiver I negative differential input
83	RXQP	I	Receiver Q positive differential input
84	RXQN	I	Receiver Q negative differential input
85	AGND	O	Analog ground
86	RXREF	–	Receiver ADC reference Not used (open)
87	AGC	O	AGC control
88	RESETIP	I	Power-on reset RC input; active low
89	TXEN	O	Transmit enable
90	GPIOC3/TXPWR1	O	PA power level select
91	TRSW	O	Transmit=1/receive=0 select Not used (open)
92	GPIOC2/TXPWR0	O	PA power level select
93	N/A	–	Not used (open)
94	EXT DET	O	EXT DET output
95	DETECT IN	–	Not used (open)
96	ENABLE OUT	–	Not used (open)
97	MITEL FSKEN	–	Not used (open)
98	MITEL STD	–	Not used (open)
99	OHP	O	Hook on/off control signal output terminal
100	VDDC	–	VDD supply to core

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• **HAND MAIN BOARD IC401 R6753-71 (HUMMINGBIRD ASIC)**

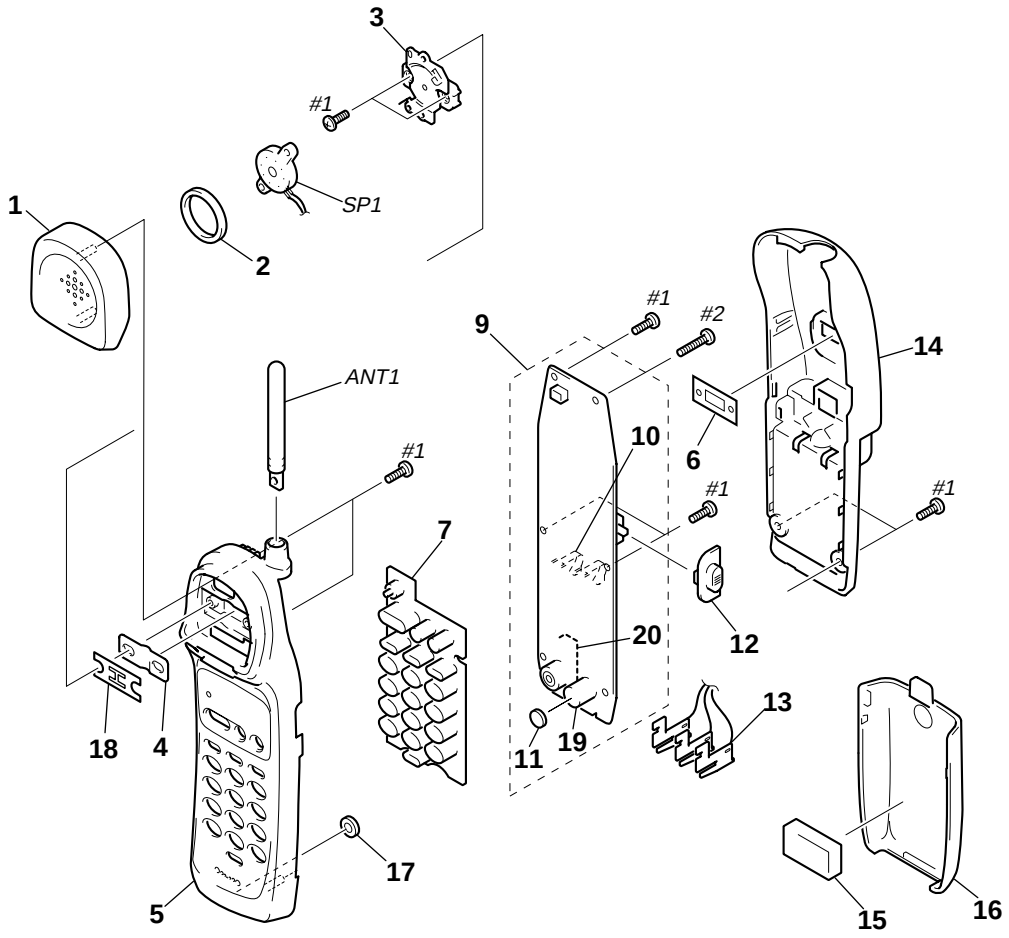
Pin No.	Pin Name	I/O	Function
1	VSSC	–	VSS supply to core
2	VDDP	–	VDD supply to pad ring
3	VSSP	–	VSS supply to pad ring
4	OSCO	O	9.6 MHz crystal oscillator output
5	OSCI	I	9.6 MHz crystal oscillator input
6	RING ON/OFF	I	Detection signal input of the ringer coming
7	GPOC0/SWCTL	O	Switch control read input
8	KEYPADR3	I	Keypad read input
9	KEYPADR2	I	Keypad read input
10	KEYPADR1	I	Keypad read input
11	KEYPADR0	I	Keypad read input
12	JOG-B	–	Not used (open)
13	JOG-A	–	Not used (open)
14	HB-SELECT	I	HAND/BASE select input
15	VDDP	–	VDD supply to pad ring
16	VSSP	–	VSS supply to pad ring
17	HEADSET DET	–	Not used (open)
18	N/A	–	Not used (open)
19	VDDC	–	VDD supply to core
20	VSSC	–	VSS supply to core
21	N/A	–	Not used (open)
22	I2C-CLK	O	Clock signal output to the EEPROM
23	I2C-DATA	I/O	Two-way data bus with the EEPROM
24	ARTI	I	ART input
25	PARKP	I	Park input; active low on base station, active high on handset
26	ARTO	O	ART output
27	SFYNC	–	Frame sync
28	SIN	I	Serial data input
29	SOUT	O	Serial data output
30	CDCMCKL	–	Main clock input Not used (open)
31	CAVSS	I	Analog 0V power supply
32	CDCDATAO	O	Codec data output
33	CDCDATAI	I	Codec data input
34	CDCFRAME	–	Codec flame
35	CDCPOR	I	Reset input, active low
36	CAVSS	I	Analog 0V power supply
37	LINEIN	I	Analog input to line pre-amp, ADC channel Not used (open)
38	MICINN	I	Negative differential analog input to microphone pre-amp, ADC channel
39	MICINP	I	Positive differential analog input to microphone pre-amp, ADC channel
40	MICBIAS	O	2.2V nominal DC bias source for electret microphone
41	CDCVREF	O	Analog reference voltage output Bypass to AVSS with 0.1mF capacitor
42	CDCAGND	O	Analog ground bias output Bypass to AVSS with 0.1mF capacitor
43	CAVDD	I	Analog power supply
44	LINEO	O	Line driver output, DAC channel Not used (open)
45	CAVSS	I	Analog 0V power supply
46	SPKROP	O	Positive speaker driver output, DAC channel
47	SPKRON	O	Negative speaker driver output, DAC channel
48	CDVSS	I	Digital 0V power supply
49	CDVDD	I	Digital power supply, 2.7-5.5 Volts
50	CAVSS	I	Analog 0V power supply

Pin No.	Pin Name I/O		Function
51	CDCICLK	–	Bit clock input/output for digital serial interface Not used (open)
52	RESETOP	O	Codec reset
53	KEYPADC0	–	Keypad bidirectional control/LCD data
54	KEYPADC1	–	Keypad bidirectional control/LCD data
55	KEYPADC2	–	Keypad bidirectional control/LCD data
56	KEYPADC3	–	Keypad bidirectional control/LCD data
57	KEYPADC4	–	Keypad bidirectional control/LCD data
58	KEYPADC5	–	Keypad bidirectional control/LCD data
59	KEYPADC6	–	Keypad bidirectional control/LCD data
60	KEYPADC7	–	Not used (open)
61	VSSC	–	VSS supply to core
62	VDDC	–	VDD supply to core
63	TESTP	–	Not used (open)
64	VSSP	–	VSS supply to pad ring
65	VDDP	–	VDD supply to pad ring
66	GPIOC1/LNATTN	O	LNA select
67	RXEN	O	Receive enable
68	GPIOC6/SYNDATA	O	Synthesizer data
69	REFOSC	–	9.6 MHz clock used by synthesizer
70	GPIOC7/SYNCLK	O	Synthesizer clock
71	GPIOC5/SYNSTB	O	Synthesizer strobe
72	GPIO4/SYNEN	O	Synthesizer power
73	DVDD	–	VDD supply to A/D converters
74	DVSS	–	VSS supply to A/D converters
75	AVDD	–	VDD supply to analog
76	AVSS	–	VSS supply to analog
77	BATTERY	I	Battery voltage input
78	VRP	O	Analog voltage reference output
79	BEEP	O	AFC DAC output
80	TXDATA	O	Transmitter data
81	RXIP	I	Receiver I positive differential input
82	RXIN	I	Receiver I negative differential input
83	RXQP	I	Receiver Q positive differential input
84	RXQN	I	Receiver Q negative differential input
85	AGND	O	Analog ground
86	RXREF	–	Receiver ADC reference Not used (open)
87	AGC	O	AGC control
88	RESETIP	I	Power-on reset RC input; active low
89	TXEN	O	Transmit enable
90	GPIOC3/TXPWR1	O	PA power level select
91	TRSW	–	Transmit=1/receive=0 select Not used (open)
92	GPIOC2/TXPWR0	O	PA power level select
93	LCD RS	–	Not used (open)
94	LCD RW	–	Not used (open)
95	LCD EN/BATT LOW LED	O	BATT LOW LED output
96	LCD POWER	–	Not used (open)
97	DIAL LED	O	DIAL LED output
98	TALK LED/LCD BACK LIGHT	O	TALK LED output
99	AMP MUTE	–	Not used (open)
100	VDDC	–	VDD supply to core

SECTION 7
EXPLODED VIEWS

NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

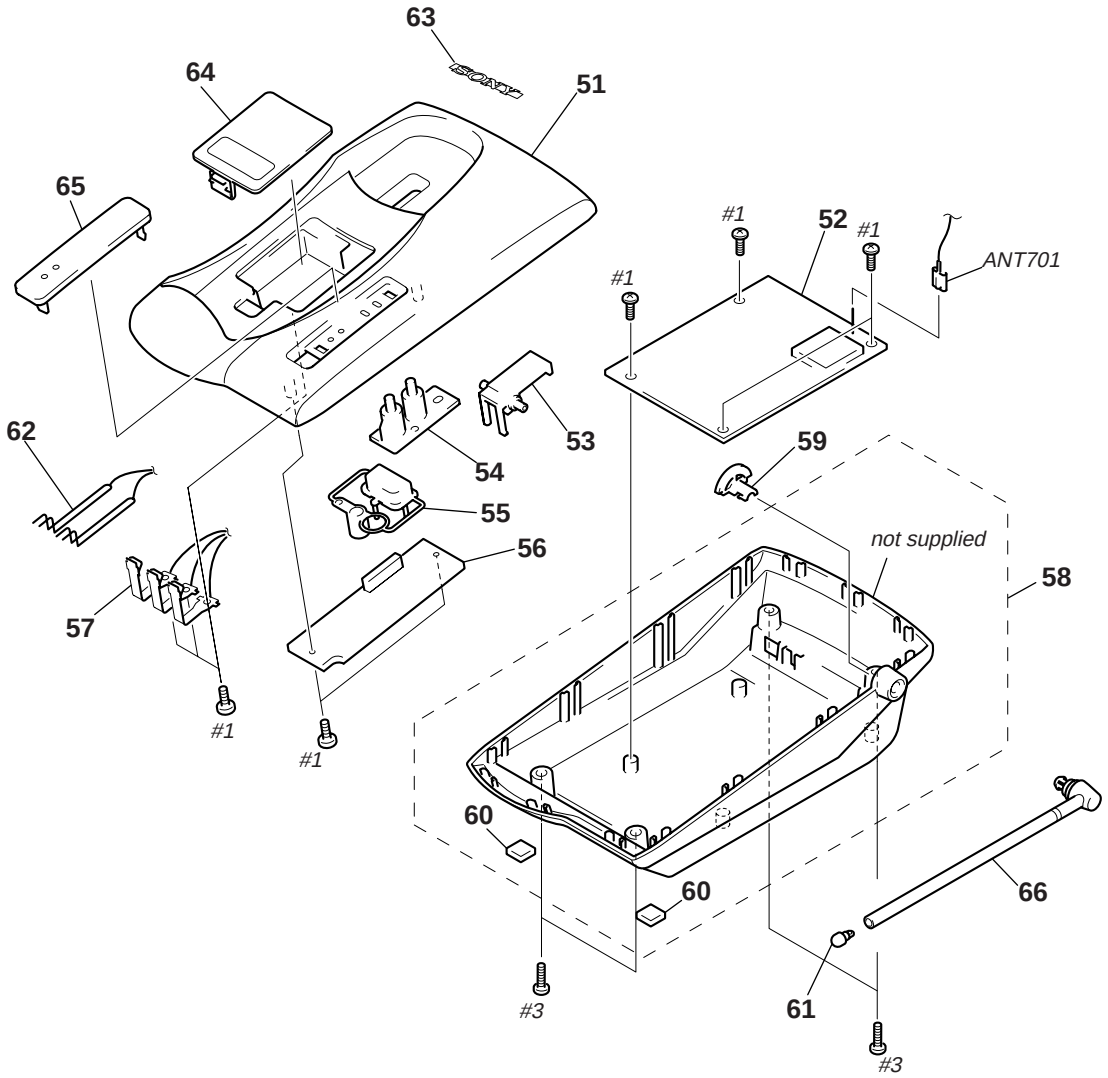
7-1. HANDSET SECTION



Ref. No.	Part No.	Description	Remark
1	3-034-812-01	PAD, EAR	
2	3-014-329-01	CUSHION (SP)	
* 3	X-3377-753-1	HINGEASSY	
4	3-034-810-01	SPRING, LEAF	
5	3-034-822-01	CABINET (FRONT)	
6	3-039-837-01	SHEET (H/S REAR)	
7	1-771-616-11	SWITCH, RUBBER KEY	
* 9	A-3622-305-A	HAND(MAIN) BOARD, COMPLETE	
10	3-034-819-01	TERMINAL (H BATTERY) CHARGE	
11	3-038-844-01	MICROPHONE CUSHION	
12	3-034-820-01	BUTTON (VOL)	
13	3-034-818-01	TERMINAL (HAND), CHARGE	

Ref. No.	Part No.	Description	Remark
14	3-034-823-01	CABINET (REAR)	
15	3-018-253-01	CUSHION (BATTERY)	
16	3-034-816-01	LID(HAND), BATTERY CASE	
16	3-034-816-11	LID(HAND), BATTERY CASE	
* 17	3-033-764-01	CUSHION (MIC)	
18	3-040-204-01	SPACER (FLEXIBLE)	
19	3-038-845-01	CUSHION (MICROPHONE RUBBER)	
20	3-041-377-01	PLATE (HAND), SHIELD	
ANT1	1-754-081-31	ANTENNA	
SP1	1-505-695-11	SPEAKER (2.1CM)	

7-2. BASE UNIT SECTION



Ref. No.	Part No.	Description	Remark
51	3-034-827-01	CABINET (UPPER)	
* 52	A-3622-374-A	BASE(MAIN) BOARD, COMPLETE	
53	3-034-830-01	HOLDER (HAND SET)	
54	3-034-825-01	LENS(BASIC)	
55	3-034-831-01	BUTTON (H.L.)	
* 56	1-674-890-11	LED BOARD	
57	3-034-833-01	TERMINAL (BASE), CHARGE	
58	X-3378-295-1	CABINET (LOWER) ASSY	
59	3-037-081-01	PLUG(ANTENNA)	

Ref. No.	Part No.	Description	Remark
60	3-936-696-21	FOOT,RUBBER	
61	3-037-080-01	CAP(ANTENNA)	
62	3-034-834-01	TERMINAL (B BATTERY), CHARGE	
63	4-946-905-11	ENBLEM (NO.4.5), SONY	
64	3-034-829-01	LID(BASE), BATTERY CASE	
65	3-034-826-01	PANEL (BASIC)	
66	3-037-079-01	BODY(ANTENNA)	
ANT701	3-038-540-01	TERMINAL, ANTENNA	

SECTION 8
ELECTRICAL PARTS LIST

BASE (MAIN)

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB..., uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H

Ref. No.	Part No.	Description			Remark
*	A-3622-374-A	BASE (MAIN) BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
⚠C101	1-162-117-00	CERAMIC	100PF	10%	500V
⚠C102	1-162-318-11	CERAMIC	0.001uF	10%	500V
⚠C103	1-162-318-11	CERAMIC	0.001uF	10%	500V
⚠C104	1-162-318-11	CERAMIC	0.001uF	10%	500V
⚠C105	1-162-318-11	CERAMIC	0.001uF	10%	500V
C106	1-128-131-11	ELECT	22uF	20%	50V
C107	1-124-261-00	ELECT	10uF	20%	50V
C108	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
⚠C111	1-136-193-11	FILM	0.47uF	10%	250V
C301	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C302	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C303	1-126-963-11	ELECT	4.7uF	20%	50V
C304	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C305	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C306	1-126-916-11	ELECT	1000uF	20%	6.3V
C307	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C309	1-164-489-11	CERAMIC CHIP	0.22uF/B	10%	16V
C310	1-163-001-11	CERAMIC CHIP	220P/B	10%	50V
C312	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C313	1-162-638-11	CERAMIC CHIP	1uF		16V
C318	1-163-009-11	CERAMIC CHIP	1000PF/B	10%	50V
C321	1-163-009-11	CERAMIC CHIP	1000P/B	10%	50V
C322	1-163-001-11	CERAMIC CHIP	220P/B	10%	50V
C325	1-164-489-11	CERAMIC CHIP	0.22uF/B	10%	16V
C327	1-163-009-11	CERAMIC CHIP	1000P/B	10%	50V
C328	1-163-009-11	CERAMIC CHIP	1000P/B	10%	50V
C329	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C501	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C502	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C503	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C505	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C506	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C507	1-126-964-11	ELECT	10uF	20%	50V
C508	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C509	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C510	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C511	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C512	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C513	1-126-964-11	ELECT	10uF	20%	50V
C514	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C515	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C516	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C518	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C519	1-164-156-11	CERAMIC CHIP	0.1uF/F		
C703	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C902	1-126-924-11	ELECT	330uF	20%	10V
C912	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C917	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C918	1-126-965-11	ELECT	22uF	20%	50V
C919	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C920	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C921	1-126-967-11	ELECT	47uF	20%	50V
C922	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C923	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C925	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C926	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C927	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C928	1-126-964-11	ELECT	10uF	20%	50V
C930	1-126-965-11	ELECT	22uF	20%	50V
C931	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C932	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C933	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C934	1-126-965-11	ELECT	22uF	20%	50V
C935	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C936	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C937	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C938	1-126-964-11	ELECT	10uF	20%	50V
C939	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C940	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C941	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C942	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C943	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C945	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C947	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C948	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C950	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C951	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C952	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C953	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C954	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C956	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C957	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C958	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C960	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C961	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C968	1-163-243-11	CERAMIC CHIP	47P	5%	50V
C969	1-162-318-11	CERAMIC CHIP	1000P	10%	50V

BASE (MAIN)

Ref. No.	Part No.	Description			Remark
C970	1-162-318-11	CERAMIC CHIP	1000P	10%	50V
C971	1-163-020-00	CERAMIC CHIP	8200PF		16V
C972	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C973	1-164-346-11	CERAMIC CHIP	1uF		16V
		< CONNECTOR >			
CN1	1-565-332-11	SMF CONNECTOR			
* CN301	1-506-985-11	PIN, CONNECTOR (PC BOARD) 3P			
* CN302	1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN501	1-506-988-11	PIN, CONNECTOR (PC BOARD) 6P			
		< DIODE >			
D101	8-719-991-33	DIODE	1SS133T-77		
⚠D102	8-719-109-89	DIODE	MTZJ-T-77-5.6		
⚠D103	8-719-109-89	DIODE	MTZJ-T-77-5.6		
⚠D104	8-719-970-02	DIODE	1SR139-400T-32		
⚠D105	8-719-970-02	DIODE	1SR139-400T-32		
⚠D106	8-719-970-02	DIODE	1SR139-400T-32		
⚠D107	8-719-970-02	DIODE	1SR139-400T-32		
D108	8-719-160-55	DIODE	RD12FB1		
D301	8-719-991-33	DIODE	1SS133T-77		
D302	8-719-037-02	DIODE	RD6.8SB-T1		
D303	8-719-991-33	DIODE	1SS133T-77		
D304	8-719-991-33	DIODE	1SS133T-77		
D306	8-719-158-55	DIODE	RD15SB-T1		
D307	8-719-037-02	DIODE	RD6.8SB-T1		
D309	8-719-938-75	DIODE	SB05-05CP-TB (S9001)		
D310	8-719-938-75	DIODE	SB05-05CP-TB		
D320	8-719-037-02	DIODE	RD6.8SB-T1		
D321	8-719-037-02	DIODE	RD6.8SB-T1		
D322	8-719-037-02	DIODE	RD6.8SB-T1		
D323	8-719-037-02	DIODE	RD6.8SB-T1		
D324	8-719-037-02	DIODE	RD6.8SB-T1		
D325	8-719-037-02	DIODE	RD6.8SB-T1		
D326	8-719-158-55	DIODE	RD15SB-T1		
D327	8-719-158-55	DIODE	RD15SB-T1		
D501	8-719-914-44	DIODE	DAP202K-T-146		
D502	8-719-914-44	DIODE	DAP202K-T-146		
D503	8-719-914-44	DIODE	DAP202K-T-146		
D504	8-719-988-61	DIODE	1SS355TE-17		
		< FUSE >			
⚠F101	1-533-542-11	FUSE (250V/500mA)			
		< IC >			
IC301	8-759-482-72	IC	uPC29M05HF		
IC302	8-759-519-47	IC	S-80730AN-DT-T1		
IC501	8-759-597-20	IC	R6753-71		
IC502	8-759-487-03	IC	S-24C01AFJA-TB-01		
		< JACK >			
J301	1-779-207-11	JACK, DC (POLARITY UNIFIED TYPE)(DC IN 9V)			
		< JUMPER RESISTOR >			
JC301	1-216-295-00	SHORT	0		
JC302	1-216-295-00	SHORT	0		
JC501	1-216-864-11	METAL CHIP	0	5%	1/16W
JC502	1-216-295-00	SHORT	0		
JC503	1-216-296-00	SHORT	0		
JC504	1-216-296-00	SHORT	0		
JC505	1-216-295-00	SHORT	0		
JC506	1-216-296-00	SHORT	0		
JC507	1-216-296-00	SHORT	0		
JC508	1-216-296-00	SHORT	0		
JC509	1-216-296-00	SHORT	0		
JC510	1-216-296-00	SHORT	0		
JC511	1-216-296-00	SHORT	0		
JC515	1-216-295-00	SHORT	0		
JC903	1-216-296-00	SHORT	0		
JC904	1-216-295-00	SHORT	0		
JR905	1-216-296-00	SHORT	0		
		< COIL >			
⚠L101	1-410-470-11	INDUCTOR	10uH		
⚠L102	1-410-470-11	INDUCTOR	10uH		
L110	1-414-722-21	INDUCTOR CHIP	12nH		
L111	1-414-718-21	INDUCTOR CHIP	2.7nH		
L204	1-414-481-21	INDUCTOR CHIP	68nH		
L301	1-410-468-11	INDUCTOR	6.8uH		
L302	1-410-468-11	INDUCTOR	6.8uH		
L303	1-410-468-11	INDUCTOR	6.8uH		
L304	1-410-468-11	INDUCTOR	6.8uH		
L305	1-410-468-11	INDUCTOR	6.8uH		
L501	1-412-945-11	INDUCTOR	3.3uH		
L502	1-411-308-21	INDUCTOR	56uH		
L503	1-414-521-11	INDUCTOR CHIP	10uH		
L504	1-216-821-11	RES,CHIP	1K		
L701	1-412-962-11	INDUCTOR	82uH		
		< JACK, MODULAR >			
MJ101	1-766-250-11	JACK, MODULAR (2C) 6P (LINE)			
		< PHOTO INTERRUPTER >			
⚠PH101	8-749-923-92	PHOTO COUPLER PS2501-1-E3			
⚠PH102	8-749-016-30	PHOTP COUPLER PS2533L-1-E3			
		< TRANSISTOR >			
⚠Q101	8-729-032-66	TRANSISTOR	2SC5069-TD		
Q102	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q103	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q301	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q302	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q303	8-729-922-26	TRANSISTOR	2SD1758F5-QR		
Q304	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q305	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q306	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q307	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q902	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q903	8-729-049-65	TRANSISTOR	2SC5595-T146		
Q904	8-729-049-65	TRANSISTOR	2SC5595-T146		
Q905	8-729-049-65	TRANSISTOR	2SC5595-T146		

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
Q907	8-729-049-65	TRANSISTOR	2SC5595-T146		
Q908	8-729-049-65	TRANSISTOR	2SC5595-T146		
		< RESISTOR >			
R101	1-215-861-00	METAL OXIDE	47	5%	1W F
R102	1-249-417-11	CARBON	1K	5%	1/4W F
R103	1-215-859-00	METAL OXIDE	22	5%	1W F
R104	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R105	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R106	1-216-085-00	METAL CHIP	33K	5%	1/10W
R107	1-216-073-00	METAL CHIP	10K	5%	1/10W
R108	1-215-877-11	METAL OXIDE	22K	5%	1W F
R109	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R110	1-216-037-00	METAL CHIP	330	5%	1/10W
R301	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R303	1-216-073-00	METAL CHIP	10K	5%	1/10W
R304	1-216-833-11	RES,CHIP	10K	5%	1/16W
R305	1-216-089-00	RES,CHIP	47K	5%	1/10W
R306	1-249-391-11	CARBON	6.8	5%	1/4W F
R307	1-249-392-11	CARBON	8.2	5%	1/4W F
R308	1-249-397-11	CARBON	22	5%	1/4W
R309	1-216-101-00	METAL CHIP	150K	5%	1/10W
R310	1-216-105-00	RES,CHIP	220K	5%	1/10W
R311	1-216-097-00	RES,CHIP	100K	5%	1/10W
R312	1-216-097-00	RES,CHIP	100K	5%	1/10W
R313	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R314	1-216-033-00	METAL CHIP	220	5%	1/10W
R315	1-260-089-11	CARBON	150	5%	1/2W
R316	1-216-073-00	METAL CHIP	10K	5%	1/10W
R318	1-215-859-00	METAL OXIDE	22	5%	1W F
R319	1-215-861-00	METAL OXIDE	47	5%	1W F
R501	1-216-295-00	SHORT	0		
R502	1-216-041-11	RES,CHIP	470	5%	1/10W
R503	1-216-041-11	RES,CHIP	470	5%	1/10W
R504	1-216-041-11	RES,CHIP	470	5%	1/10W
R505	1-216-041-11	RES,CHIP	470	5%	1/10W
R507	1-216-041-11	RES,CHIP	470	5%	1/10W
R508	1-216-097-00	RES,CHIP	100K	5%	1/10W
R509	1-216-073-00	METAL CHIP	10K	5%	1/10W
R511	1-216-041-00	METAL CHIP	470	5%	1/10W
R512	1-216-009-00	RES,CHIP	22	5%	1/10W
R513	1-216-864-11	METAL CHIP	0	5%	1/16W
R514	1-216-864-11	METAL CHIP	0	5%	1/16W
R515	1-216-817-11	METAL CHIP	470	5%	1/16W
R516	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R517	1-216-121-00	RES,CHIP	1M	5%	1/10W
R518	1-216-809-11	METAL CHIP	100	5%	1/16W
R521	1-216-041-00	METAL CHIP	470	5%	1/10W
R522	1-216-073-00	METAL CHIP	10K	5%	1/10W
R523	1-216-053-00	RES,CHIP	1.5K	5%	1/16W
R524	1-216-041-00	METAL CHIP	470	5%	1/10W
R525	1-216-025-00	METAL CHIP	100	5%	1/10W
R526	1-216-017-00	RES,CHIP	47	5%	1/10W
R527	1-216-041-11	RES,CHIP	470	5%	1/10W
R528	1-216-295-00	SHORT	0		
R529	1-216-041-11	RES,CHIP	470	5%	1/10W
R532	1-216-073-00	METAL CHIP	10K	5%	1/10W
R550	1-216-025-00	RES,CHIP	100	5%	1/10W
R551	1-216-809-11	RES,CHIP	100	5%	1/16W
R552	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R553	1-216-025-00	RES,CHIP	100	5%	1/10W
R554	1-216-817-11	METAL CHIP	470	5%	1/16W
R555	1-216-817-11	METAL CHIP	470	5%	1/16W
R556	1-216-817-11	METAL CHIP	470	5%	1/16W
R557	1-216-817-11	METAL CHIP	470	5%	1/16W
R558	1-216-025-00	RES,CHIP	100	5%	1/10W
R562	1-216-295-00	SHORT	0		
R701	1-216-833-11	RES,CHIP	10K	5%	1/16W
R702	1-216-073-00	METAL CHIP	10K	5%	1/10W
R703	1-216-097-00	RES,CHIP	100K	5%	1/10W
R704	1-216-097-00	RES,CHIP	100K	5%	1/10W
R705	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R706	1-216-039-00	METAL CHIP	390	5%	1/10W
R707	1-216-039-00	METAL CHIP	390	5%	1/10W
R905	1-216-081-11	RES,CHIP	22K	5%	1/10W
R914	1-216-295-00	SHORT	0		
R919	1-216-013-00	METAL CHIP	33	5%	1/10W
R920	1-216-073-00	METAL CHIP	10K	5%	1/10W
R921	1-216-033-00	METAL CHIP	220	5%	1/10W
R922	1-216-077-00	METAL CHIP	15K	5%	1/10W
R923	1-216-073-00	METAL CHIP	10K	5%	1/10W
R924	1-216-041-00	METAL CHIP	470	5%	1/10W
R925	1-216-105-00	RES,CHIP	220K	5%	1/10W
R926	1-216-085-00	METAL CHIP	33K	5%	1/10W
R927	1-216-295-00	SHORT	0		
R928	1-216-097-00	RES,CHIP	100K	5%	1/10W
R929	1-216-667-00	RES,CHIP	4.7K	0.5%	1/10W
R930	1-216-681-00	METAL CHIP	18K	0.5%	1/10W
R931	1-216-667-00	RES,CHIP	4.7K	0.5%	1/10W
R932	1-216-109-00	METAL CHIP	330K	5%	1/10W
R934	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R935	1-216-025-00	RES,CHIP	100	5%	1/10W
R936	1-216-113-00	METAL CHIP	470K	5%	1/10W
R937	1-216-113-00	METAL CHIP	470K	5%	1/10W
R938	1-216-049-00	RES,CHIP	1K	5%	1/10W
R939	1-216-295-00	SHORT	0		
R942	1-216-077-00	METAL CHIP	15K	5%	1/10W
R943	1-216-109-00	METAL CHIP	330K	5%	1/10W
R944	1-216-025-00	RES,CHIP	100	5%	1/10W
R945	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R946	1-216-049-00	RES,CHIP	1K	5%	1/10W
R947	1-216-105-00	RES,CHIP	220K	5%	1/10W
R948	1-216-101-00	RES,CHIP	150K	5%	1/10W
R949	1-216-073-00	METAL CHIP	10K	5%	1/10W
R950	1-216-049-00	METAL CHIP	33K	5%	1/10W
R956	1-216-295-00	SHORT	1K	5%	1/10W
R966	1-216-009-00	RES,CHIP	22	5%	1/10W
R975	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R976	1-216-105-00	METAL CHIP	220K	5%	1/10W

BASE (MAIN) | HAND (MAIN)

Ref. No.	Part No.	Description			Remark
		< MODULATOR >			
RFU801	1-418-269-11	RF UNIT			
		< SPARK GAP >			
⚠SG101	1-533-751-11	ABSORBER, SURGE			
		< SWITCH >			
SW501	1-692-991-11	SWITCH, SLIDE (DIAL MODE)			
SW502	1-771-056-21	SWITCH, DIP (FLASH-TIMMING)			
		< TRANSFORMER >			
⚠T101	1-431-832-11	TRANSFORMER, LINE			
		< VIBRATOR >			
X501	1-767-566-41	VIBRATOR, CRYSTAL (9.6MHz)			
**********					
*	A-3622-305-A	HAND (MAIN) BOARD, COMPLETE			
		**********			
	3-034-819-01	TERMINAL (H BATTERY), CHARGE			
		< BUZZER >			
BZ601	1-544-603-11	BUZZER			
		< CAPACITOR >			
C201	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C202	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C203	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C204	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C205	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C206	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C207	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C208	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C209	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C210	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C211	1-163-038-11	CERAMIC CHIP	0.1uF		25V
C401	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C402	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C403	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C404	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C405	1-125-822-11	TANTALUM	10uF	20%	10V
C406	1-164-360-11	CERAMIC CHIP	0.1uF	10%	16V
C407	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C408	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C409	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C410	1-164-031-00	CERAMIC CHIP	0.01uF		50V
C411	1-164-360-11	CERAMIC CHIP	0.1uF	10%	16V
C412	1-164-360-11	CERAMIC CHIP	0.1uF	10%	16V
C413	1-126-206-11	ELECT CHIP	100uF	20%	6.3V
C414	1-125-822-11	TANTALUM	10uF	20%	10V
C418	1-164-360-11	CERAMIC CHIP	0.1uF	10%	16V
C419	1-162-995-11	CERAMIC CHIP	0.1uF		50V
C420	1-125-822-11	TANTALUM	10uF	20%	10V

Ref. No.	Part No.	Description			Remark
C421	1-164-360-11	CERAMIC CHIP	0.1uF	10%	16V
C423	1-164-360-11	CERAMIC CHIP	0.1uF	10%	16V
C424	1-162-915-11	CERAMIC CHIP	10PF	5%	50V
C425	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C601	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C602	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C603	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C605	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C606	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C607	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C610	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C611	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C612	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C613	1-163-020-00	CERAMIC CHIP	8200PF		25V
C614	1-163-020-00	CERAMIC CHIP	8200PF		25V
C616	1-163-243-11	CERAMIC CHIP	47P/CH	5%	50V
C617	1-125-822-11	TANTALUM	10uF	20%	10V
C619	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C620	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C621	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C622	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C627	1-117-370-11	CERAMIC CAP	10uF		10V
C801	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C802	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C803	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C804	1-163-025-11	CERAMIC CHIP	0.001uF		50V
C805	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C806	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C807	1-163-038-00	CERAMIC CHIP	0.1uF		50V
C808	1-163-235-11	CERAMIC CHIP	22P/CH	5%	50V
C809	1-163-235-11	CERAMIC CHIP	22P/CH	5%	50V
		< CONNECTOR >			
* CN202	1-766-809-11	PIN, CONNECTOR (PC BOARD) 3P			
CN601	1-770-359-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
D201	8-719-938-75	DIODE SB05-05CP-TB			
D202	8-719-981-56	DIODE SB05W05C-TB			
D203	8-719-938-75	DIODE SB05-05CP-TB			
D205	8-719-914-43	DIODE DAN202K-T-146			
D206	8-719-066-61	DIODE RD5.6P-T1			
D207	8-719-914-42	DIODE DA204K-T-146			
D208	8-719-066-61	DIODE RD5.6P-T1			
D209	8-719-914-42	DIODE DA204K-T-146			
D402	8-719-058-00	DIODE SML-221DT (TALK)			
D403	8-719-075-89	DIODE BR1112H-730-TR (BATT LOW)			
D404	8-719-075-88	DIODE PY1112H-630-TR (ILLUMINATION)			
D405	8-719-075-88	DIODE PY1112H-630-TR (ILLUMINATION)			
D406	8-719-075-88	DIODE PY1112H-630-TR (ILLUMINATION)			
D407	8-719-075-88	DIODE PY1112H-630-TR (ILLUMINATION)			
D413	8-719-036-94	DIODE RD5.6SB			
D414	8-719-914-43	DIODE DAN202K-T-146			
D415	8-719-914-43	DIODE DAN202K-T-146			
D416	8-719-988-61	DIODE 1SS355TE-17			
D417	8-719-988-61	DIODE 1SS355TE-17			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remark
D418	8-719-988-61	DIODE 1SS355TE-17			
D419	8-719-988-61	DIODE 1SS355TE-17			
D420	8-719-988-61	DIODE 1SS355TE-17			
D422	8-719-036-94	DIODE RD5.6SB			
D601	8-719-914-42	DIODE DA204K-T-146			
D801	8-719-066-61	DIODE RD5.6P-T1			
		< IC >			
IC201	8-759-443-71	IC RH5VL30AA-T1			
IC201	8-759-519-47	IC S-80730AN-DT-T1			
IC401	8-759-597-20	IC R6753-71			
IC402	8-759-487-04	IC S-24C02AFJA-TB-01			
		< COIL >			
L201	1-412-945-11	INDUCTOR	3.3uH		
L201	1-412-945-21	INDUCTOR	3.3uH		
L202	1-216-296-00	RES,CHIP	0		
L203	1-216-296-00	RES,CHIP	0		
L204	1-412-786-41	INDUCTOR	6.8uH		
L205	1-410-379-21	INDUCTOR	6.8uH		
L206	1-410-379-21	INDUCTOR	6.8uH		
L207	1-410-379-21	INDUCTOR	6.8uH		
L401	1-216-823-11	RES,CHIP	1.5K		
L402	1-414-528-21	INDUCTOR CHIP	56nH		
L601	1-414-481-11	INDUCTOR	68nH		
L602	1-414-481-11	INDUCTOR	68nH		
L801	1-412-962-11	INDUCTOR	82uH		
L803	1-414-205-21	INDUCTOR	4.7nH		
		< MICROPHONE >			
MIC601	1-542-118-11	MICROPHONE, ELECTRET CONDENSER			
		< TRANSISTOR >			
Q201	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q202	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q203	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
Q204	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q402	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q405	8-729-026-50	TRANSISTOR	2SA1037AK-T146-QR		
Q601	8-729-920-75	TRANSISTOR	2SC2412K-T-146-QR		
		< RESISTOR >			
R203	1-216-093-11	RES,CHIP	68K	5%	1/10W
R204	1-216-085-00	METAL CHIP	33K	5%	1/10W
R205	1-216-097-00	RES,CHIP	100K	5%	1/10W
R206	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R207	1-216-089-00	RES,CHIP	47K	5%	1/10W
R208	1-216-073-00	METAL CHIP	10K	5%	1/10W
R209	1-216-049-00	RES,CHIP	1K	5%	1/10W
R210	1-216-097-00	RES,CHIP	100K	5%	1/10W
R211	1-216-089-00	RES,CHIP	47K	5%	1/10W
R212	1-216-073-00	METAL CHIP	10K	5%	1/10W
R213	1-216-073-00	METAL CHIP	10K	5%	1/10W
R214	1-216-097-11	RES,CHIP	100K	5%	1/10W
R215	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R216	1-216-073-00	METAL CHIP	10K	5%	1/10W
R401	1-216-294-00	RES,CHIP	0	5%	1/8W

Ref. No.	Part No.	Description			Remark
R402	1-216-294-00	RES,CHIP	0	5%	1/8W
R403	1-412-995-21	INDUCTOR	22uH	20%	
R404	1-216-073-00	METAL CHIP	10K	5%	1/10W
R405	1-216-073-00	METAL CHIP	10K	5%	1/10W
R406	1-216-033-00	METAL CHIP	220	5%	1/10W
R407	1-216-041-00	METAL CHIP	470	5%	1/10W
R408	1-216-033-00	METAL CHIP	220	5%	1/10W
R409	1-216-033-00	METAL CHIP	220	5%	1/10W
R410	1-216-033-00	METAL CHIP	220	5%	1/10W
R411	1-216-033-00	METAL CHIP	220	5%	1/10W
R414	1-216-073-00	METAL CHIP	10K	5%	1/10W
R415	1-216-817-11	METAL CHIP	470	5%	1/16W
R416	1-216-817-11	METAL CHIP	470	5%	1/16W
R417	1-216-097-00	RES,CHIP	100K	5%	1/10W
R418	1-216-693-00	METAL CHIP	56K	0.50%	1/16W
R419	1-218-735-11	METAL CHIP	62K	0.50%	1/16W
R420	1-216-817-11	METAL CHIP	470	5%	1/16W
R421	1-216-864-11	METAL CHIP	0	5%	1/16W
R422	1-216-817-11	METAL CHIP	470	5%	1/16W
R423	1-216-817-11	METAL CHIP	470	5%	1/16W
R426	1-216-817-11	METAL CHIP	470	5%	1/16W
R427	1-216-805-11	METAL CHIP	47	5%	1/16W
R428	1-216-816-11	METAL CHIP	390	5%	1/16W
R429	1-216-805-11	METAL CHIP	47	5%	1/16W
R430	1-216-817-11	METAL CHIP	470	5%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W
R432	1-216-864-11	METAL CHIP	0	5%	1/16W
R434	1-216-817-11	METAL CHIP	470	5%	1/16W
R435	1-216-121-00	METAL CHIP	1M	5%	1/16W
R436	1-216-809-11	METAL CHIP	100	5%	1/16W
R437	1-216-097-00	RES,CHIP	100K	5%	1/10W
R438	1-216-864-11	METAL CHIP	0	5%	1/16W
R439	1-216-864-11	METAL CHIP	0	5%	1/16W
R440	1-216-097-00	RES,CHIP	100K	5%	1/10W
R441	1-216-001-00	METAL CHIP	10	5%	1/16W
R443	1-216-819-11	METAL CHIP	680	5%	1/16W
R448	1-216-295-00	SHORT	0		
R450	1-216-073-00	METAL CHIP	10K	5%	1/10W
R451	1-216-073-00	METAL CHIP	10K	5%	1/10W
R455	1-216-819-11	METAL CHIP	680	5%	1/16W
R456	1-216-821-11	METAL CHIP	1K	5%	1/16W
R601	1-216-097-00	RES,CHIP	100K	5%	1/10W
R602	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R603	1-216-033-11	SHORT	220		
R604	1-216-295-00	SHORT	0		
R605	1-216-045-00	METAL CHIP	680	5%	1/10W
R606	1-216-037-00	METAL CHIP	330	5%	1/10W
R607	1-216-009-00	METAL CHIP	22	5%	1/10W
R608	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R609	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R610	1-216-105-00	RES,CHIP	220K	5%	1/10W
R611	1-216-105-00	RES,CHIP	220K	5%	1/10W
R612	1-216-295-00	SHORT	0		
R613	1-216-081-00	METAL CHIP	22K	5%	1/10W
R615	1-216-105-00	RES,CHIP	220K	5%	1/10W
R616	1-216-295-00	SHORT	0		
R617	1-216-105-00	RES,CHIP	220K	5%	1/10W

HAND (MAIN) | LED

Ref. No.	Part No.	Description			Remark
R618	1-216-017-00	RES,CHIP	47	5%	1/10W
R619	1-216-017-00	RES,CHIP	47	5%	1/10W
R620	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R621	1-216-017-00	RES,CHIP	47	5%	1/10W
R622	1-216-017-00	RES,CHIP	47	5%	1/10W
R623	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R624	1-216-295-00	SHORT	0		
R625	1-216-295-00	SHORT	0		
R631	1-216-045-00	METAL CHIP	680	5%	1/10W
R632	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R633	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R805	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R806	1-216-039-00	METAL CHIP	390	5%	1/10W
R807	1-216-039-00	METAL CHIP	390	5%	1/10W
		< MODULATOR >			
RFU801	1-418-269-11	RF UNIT			
		< SWITCH >			
S401	1-762-636-11	SWITCH, SLIDE (RING)			
S601	1-771-761-11	SWITCH, SLIDE (VOL)			
		< VIBRATOR >			
X401	1-767-566-41	VIBRATOR, CRYSTAL (9.6MHz)			

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*	1-674-890-11	LED BOARD	
		**********	
		< CONNECTOR >	
* CN502	1-506-988-11	PIN, CONNECTOR (PC BOARD) 6P	
		< DIODE >	
D573	8-719-059-87	DIODE SLR-342VRTB7 (SPARE BATTERY)	
D574	8-719-059-87	DIODE SLR-342VRTB7 (CHARGE)	
		< JUMPER RESISTOR >	
JC574	1-216-295-00	SHORT	0
		< RESISTOR >	
R580	1-216-041-00	METAL CHIP	470 5% 1/10W
R581	1-216-041-00	METAL CHIP	470 5% 1/10W
		< SWITCH >	
SW571	1-571-977-11	SWITCH, TACTIL (HANDSET LOCATOR)	

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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
7	1-771-616-11	SWITCH, RUBBER KEY	
ANT1	1-754-081-31	ANTENNA	
ANT701	3-038-540-01	TERMINAL, ANTENNA	
SP1	1-505-695-1	SPEAKER (2.1CM)	

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		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-475-780-32	ADAPTOR, AC (AC-T123)	
	1-528-976-21	BATTERY, NI-CD (BP-T31)	
	1-696-453-21	CORD (WITH MODULAR PLUG)(LINE)(22 cm)	
	3-012-379-31	CASE (WALL HOOK)	
	3-866-974-31	MANUAL, INSTRUCTION (SPANISH)	
	3-936-680-01	LABEL (ADRESS)	

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		**********
		HARDWARE LIST
		**********
#1	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S
#2	7-685-136-19	SCREW +BTP 2.6X12 TYPE2 N-S
#3	7-685-647-79	SCREW +P 3X10 TYPE2 NON-SLIT

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Personal Audio Company

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